

JUNE 1953

ARMY INFORMATION DIGEST



In This Issue:

WOMEN ON DUTY. The date was 28 June 1778, one hundred and seventy-five years ago; the scene, amid the smoke and confusion of the Battle of Monmouth. A woman carries water to the sweltering cannoners of the Continent Army. For her spirited action and daring, Mary Ludwig Hays quickly won the nickname "Molly Pitcher." Legend even has it that she took her husband's place at the gun, an episode that inspired H. G. Ferris' painting reprinted on the back cover from the National Archives collection.

FIVE YEARS AGO, with the signing of the Women's Armed Services Integration Act of 12 June 1948, the Women's Army Corps was made a part of the Regular Army of the United States. The Act signified official recognition of the value of women in military service—a fact which had been conclusively demonstrated during World War II. Today, heirs of the Molly Pitcher tradition serve in numerous capacities throughout the Army. Qualifications and opportunities for women contemplating a service career are spelled out in "Army Women on Active Duty."

WARRIORS IN A DEMOCRACY must be more than specialists in combat, a newspaper publisher who is also Commanding General of the 77th Infantry Division declares. In "The Free Press—Weapon of Democracy," Major General Julius Ochs Adler emphasizes that "Never before has it been so vital for men of good will to be also men of sound information. . . . We need to be as familiar with spiritual weapons as we are with tank, landing craft and plane."

OCS FOR GUARDSMAN. How qualified young men are earning commissions in the Army Reserve and National Guard by attending weekend and summer camp sessions of the New York National Guard Officer Candidate School is the theme of "New York Provides Its Own Guard Officers."

TEN YEARS AGO a brigadier general on the Allied Control Commission risked capture by the enemy, slipping through German lines to enter Rome and begin armistice negotiations with the Badoglio government. Later, as commanding general of the 101st Airborne Division, he parachuted into Normandy the night before D-Day and again during the airborne invasion of Holland, then led the 101st through the campaigns of the Ardennes and Central Europe. While Superintendent of the United States Military Academy, Lieutenant General (then Major General) Maxwell D. Taylor outlined for the Cadets the essential qualities which an officer must possess if he is to lead troops successfully. Examples from military history are used to illustrate "The Attributes of Leadership."

NEXT TO BATTLE ITSELF, the maneuver is the pay-off. Besides the obvious benefits of troop training and testing of equipment under field conditions, it enables commanders to develop proficiency in combined arms operations and to improve strategy and tactics. In "Maneuver Picture," Major General Charles D. Palmer, Assistant Chief of Staff, G3, Office of the Chief of Army Field Forces, describes how maneuvers are conceived, planned and carried out.

"GET OFF MY BACK" is more than a colorful figure of speech so far as the Signal Corps is concerned. Its program of "Miniaturization, Ruggedization and Reliability" is lightening the front-line soldier's burden while giving him better communications—all at considerable savings in bulk, weight and cost—as reported in "Toward Lighter Signal Equipment."

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U. S. Army Photograph

LIEUTENANT GENERAL MAXWELL D. TAYLOR

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THE ATTRIBUTES OF LEADERSHIP

LIEUTENANT GENERAL MAXWELL D. TAYLOR

WHAT ARE SOME of the qualities an officer must develop if he is to lead his men successfully?

While there is no unanimity of opinion as to what characteristics are most important in the formation of leaders, I submit that all the great leaders of the past and the present have been conspicuous for three qualities. First, they have been devoted to the welfare of their troops. Next, they have been richly endowed with human understanding. And finally, they have stood out by their professional competence and ability.

The citizen soldier finds himself suddenly in a strange environment. He is torn from his family and friends and thrown among strangers. Introduced to new institutions and customs, he feels vaguely threatened by the unfamiliar present and, even more, by the uncertain future. His conception of the Army has been distorted by false literature and movies which have given him a *What Price Glory* idea of military life. He suffers from the absence of a standard of values to guide him in the world in which he finds himself. At such a time, the soldier needs to look to someone in whom he has confidence, someone who will build up in him the feeling that he is a protected human entity. That someone must be his commanding officer.

We find in soldier gripes the recurring note that certain officers did not look after their men, that they thought of themselves first and placed the requirements of their troops in the background. In the great World War II officer corps of 900,000, doubtless there were many who failed in their responsibility to their men. Such officers were the antithesis of what an officer and gentleman should be, and they were responsible for the regrettable repercussions which, following the war, grew out of our officer-soldier relationships. A reflective reading of history

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will show that no man ever rose to military greatness who could not convince his troops that he put them first, above all else.

Few leaders in all history have had the wholehearted support of their men to the extent that Robert E. Lee held the devotion of the Army of Northern Virginia. While much of Lee's greatness was due to his professional qualities, a large measure of his success was due to the fact that the Army of Northern Virginia knew that General Lee did his best to provide for their welfare. He was loyal to them, and they were loyal to him. When he ordered them to dig entrenchments, a work which they always hated, they knew that the work was necessary and was done to protect their lives. They knew that when he ordered them into battle he had planned with wisdom so that they could succeed with minimum losses.

Soldiers were not considered cannon fodder by General Lee; they were comrades associated in the common enterprise of defeating the enemy and serving a cause to which they were all devoted. Furthermore, his soldiers saw that this comradeship was no mere lip service, for General Lee lived just as simply as they did; his table was no better than theirs, and often worse. When friends sent him chicken, eggs and other delicacies, General Lee would send them to the hospital, feeling that the wounded deserved them more than he and his staff.

Washington was like Lee in his devotion to his men. He, the aristocrat accustomed to a life of relative luxury, set a personal example in bearing the privations and hardships at Valley Forge, an example which won to him a loyal group of followers. Later this little band formed the nucleus of the force that changed the whole trend of the war in our favor. His constant effort to better the condition of his troops was known to them and was an important factor in developing the Army into a potent weapon.

The work of impressing upon the soldier the fact that his officers are interested in his welfare should start from the first day he joins his unit and be continuous thereafter. The recruit is particularly responsive to the right sort of treatment. He usually arrives through the replacement system after a very unhappy period of weeks or months. He has been exposed to many inconveniences and annoyances; and in wartime, he has come from what the soldiers contemptuously called the "repple depples" where he had often been commanded by officers assigned to the replacement service because of lack of ability to command in combat. By the time he reaches his first regiment, he is likely to be disgruntled by the treatment he has received.

That is the moment which the alert commander will seize to convince the recruit that all has been changed, that he now has a home in the unit which he has just joined. He must be taught the history of that unit and must be shown that it is one with a distinguished record of service to which it is an honor to belong. The keynote should be, "You are joining a proved outfit that is glad to have you. It will look after you, but you must look after the reputation of the outfit. Its past history has been paid for by the blood of the killed and wounded; it is up to you to live up to the record which these men have made at such a price."

But this talk will not be convincing unless, when the recruit reaches his company or battery, he finds that it is really a happy organization. The old soldiers will be quick to tell him whether the commander looks after his men or not. What you should hope that your recruit will hear is that the "old man" is always on the job, that he keeps a sharp lookout for the comforts of his men, that he is genuinely interested in the unit's recreational life, and that he is warmly understanding of the men's personal problems. If your recruit hears such things from the old timers, you will have no trouble in filling the vacancies in your ranks with loyal and effective replacements.

One important aspect of caring for troops is to see to it that they are not exposed to unnecessary hardships. The successful leader, by intelligent planning, will avoid the march which must be followed by a countermarch; by his professional skill, he will choose positions which will spare his men hardships and losses. Sherman convinced his men of his concern for their welfare by the thoroughness with which he trained them and by the consideration which he showed for them in campaign. The men soon learned that the extremely difficult marches he required really saved them needless casualties. They noted how he marched his troops at night to spare them the burning heat of the day. He himself rode in the fields beside the marching columns to avoid crowding the men off the road.

This picture is the reverse of what I saw all too frequently overseas: Thoughtless officers racing their jeeps past marching troops and splattering them with mud. The deep cursing which such officers caused in the ranks was a fitting commentary on this display of negative leadership.

No leader worth his salt will fail to feel and show his sincere sorrow for the dead and his sympathy for the wounded. Julius Caesar, after one military disaster in which he had lost many

troops, allowed his beard and hair to grow and vowed he would not cut them until his soldiers had avenged their comrades' deaths. In the intervals of fighting, Stonewall Jackson was always seen in his field hospitals, visiting the sick and wounded. Soldiers cannot be allowed to think that they are scratched off the list and forgotten when the fortunes of battle lay them low.

Devotion to troops can be summed up in this way. The badge of rank which an officer wears on his coat is really a symbol of servitude—servitude to his men. The privileges which he receives along with his rank come to the officer, not for any intrinsic personal merit but because the officer is entitled to more time and leisure for thought and preparation in serving his troops. If his behavior shows that in all things the enlisted man comes first, he will receive loyal uncomplaining service from his men without the grumbling which is the merited lot of the selfish officer.

The second attribute of the successful leader is the gift of human understanding, the ability to treat men as individuals and not as Army serial numbers. American troops in particular resent any suggestion that they are without individuality, that they are ciphers and not people. They want to be known for themselves and will resist any attempt to mold them into a pattern of anonymity.

All great soldiers have succeeded in convincing their men that they know and respect them as individuals. To accomplish this purpose, they go among their men freely, mingling with them and giving the soldiers a chance to look them over and size them up. The officer who barricades himself behind his rank is properly suspected of having weaknesses to conceal—probably more than he actually has. The successful commander claims no infallibility and is not afraid to expose himself to close view. Instead, he is often seen among his men; he learns their surnames and calls them by name at every opportunity. It is said of Caesar that he never lacked a pleasant word for his soldiers. He remembered the face of anyone who had done a gallant deed, and when not in the presence of the enemy he frequently joined with the men in their amusements. Such little human acts as these inspired his legionaries with the devotion which went so far to account for his success as a great captain.

Another subtle approach to the affection of our men is an interest in their families. Ask any soldier about his wife and children; he is delighted to tell his life story and is greatly flattered by the interest which his commander shows. An occa-

sional letter from an officer to a member of a soldier's family—to his father, for example, describing the good work which the son is doing in the Army—will reverberate throughout the entire command, and the officer will have made a life-long friend of the soldier in question.

An officer shows understanding of this type when he goes out of his way to explain the necessity of his orders and the reason for the actions required of his men. During World War II, most successful generals went to great lengths in explaining their detailed plans prior to asking troops to execute them. You recall that General Montgomery, in the battle of El Alemain, ordered that every man in the Eighth Army be told the plan of attack.

In our American landings in North Africa, in Sicily, at Salerno and in Normandy, commanders were most careful to brief their men thoroughly on what to expect and why. This explaining of why to the troops goes beyond the need for an explanation of individual battles or campaigns; it should cover the entire question of why we are fighting. We need only recall the fervor which sustained the Southern states in our Civil War. It was the Confederate soldier's love of his cause that kept him going for four long years when he was poorly equipped, seldom fed and nearly always fighting against odds. It was only when a similar spirit became common in the armies of the North that the tide of victory swung to their side.

I think that this discussion of the need of human understanding can be summed up by saying that it is the exercise of common sense in human relations. There are times to be stern; there are times to be lenient. There are times to be exacting; there are times to be tolerant. This feeling for the right course to be taken with men is instinctive in some officers and lacking in others, but it can be cultivated and developed by all. In this connection I advise that junior officers should observe the behavior of respected senior officers, especially those who are obviously successful with soldiers. Thus, by emulation, many will in due time become models themselves.

The last of the trio of virtues of the successful leader is personal, professional competence. The leader must know his business, and the men must know that he knows. War is a terribly serious business, and our citizen soldiers want their lives protected by experts. They may tend to belittle the Regular Army in times of peace; but, when war comes, our citizens want to feel that their lives and fortunes are in the hands of profes-

sionals. It is the duty of Regular officers to devote their lives to providing this professional leadership.

Professional competence is more than a display of book knowledge or of the results of military schooling. It requires the display of qualities of character which reflect inner strength and justified confidence in one's self. To give an impression of strength, an officer must consider his personal appearance, his physical condition, his tone of voice, his method of life—all of which give an impression of his character to the soldier. This does not mean the development of an artificial personality. All of us have certain traits which were given us at birth. We all have a core of personality that cannot be changed, but that can be constantly developed. A facade of sham will not serve.

If you would have your men believe that you are strong, you must be strong. If you would teach them to be rugged, you must avoid a soft life yourself. If you would have your men be brave, you must yourself be an example of valor.

To bring the full force of his character to bear effectively upon his men, an officer must resort to every device of personal leadership. I know that some military thinkers say that the day is past in modern war when the leader can place himself in front of his men and inspire them in action in the tradition of Civil War brigadiers who charged on foot at the head of their men. I do not believe this for one moment. Personal leadership is still possible within limits, and it should be supplied by every commander.

General Doolittle electrified a discouraged Allied world by his personal leadership when he flew his B-25 off the flight deck of the *Hornet*. General Patton was a model to his subordinate officers and men because of his personal intervention on the battlefield. There was no point of the front where he, an Army commander, did not go and show himself to his troops. He condemned with passionate fierceness the type of commander who stays in the command post and does not visit the troops. For such commanders, he was a terror incarnate; and they would flee at the word of his approach to avoid the blistering criticism that would fall upon them if they were caught in the rear of their front line.

The vastness of General Eisenhower's responsibilities in Europe did not prevent his giving personal leadership to his troops. Although the size of his command made his visits infrequent at any given point, nevertheless, when he did come around, he knew how to get down and chat with the individual men, so

that they had the feeling of knowing General Eisenhower personally. They received a vivid impression of the professional efficiency and the high character which are his outstanding attributes, and as a result they went cheerfully and willingly into the dangers which his campaigns entailed.

What are the rewards which fall to the officer who combines felicitously these three qualities—devotion to the troops, human understanding and professional competence?

First and foremost, he can expect to get the best out of his troops, and American troops at their best are without equal. No foreign army can compare with ours when ours is properly led. The American soldiers have courage, physical vigor, initiative and dash. All of these are rich talents which they bring and place in the hands of the commander who knows how to unify them with the catalyst of true discipline.

By true discipline, I mean that willing and cheerful subordination of the individual to the success of the team which is the Army. This kind of discipline is not to be confused with the external appearances of traditional discipline—the salute, the knock on the orderly room door, the formulae of deference to superiors—in short, military courtesy as it is rigidly prescribed in our field manuals. The latter all have their place, particularly in the peacetime Army; but they are not indices of the discipline which really counts. The Army of Northern Virginia would have rated very low in military discipline in the restricted sense. It would never have won “first line” at a West Point parade, but by its spirit it has won a place among the great fighting units of all times, alongside of Xenophon’s Ten Thousand, Caesar’s Tenth Legion, and Napoleon’s Old Guard. American troops when armed with their natural qualities plus discipline are irresistible.

Having achieved true discipline among his men, the successful commander will be victorious in battle. Victory feeds upon itself and soon creates the feeling of invincibility and pride of organization which, together, magnify the intrinsic strength of the company manyfold.

The commander’s troubles are at an end when the threat of dismissing a man from his company or regiment becomes a punishment more dreaded than court-martial. He need feel no concern when his soldiers brawl in the taverns to prove that they “belong to the best damned outfit in the Army.” This spirit may bring on some headaches with the Military Police, but a commander need have no fear for his military reputation with

such men at his side. The greatest divisions of all of our wars have had this spirit, a fact which accounted in a large measure for their success.

I know of no finer example than that of the 1st Division in World War I. That Division suffered seven thousand casualties between 4 and 11 October 1918. They came out of the line expecting a month's rest, but instead were ordered quickly back into the Meuse-Argonne battle. On 29 October, the Division Commander delivered the following message, "Memorandum for Members of the 1st Division: It will be well for us to bear in mind at all times, especially on the eve of active operations, (1) That we were the first assault division of the AEF; (2) That we have on four battlefields always taken all objectives assigned to us; (3) That we have gone through the best German divisions for a total of thirty kilometers and have never abandoned an inch of ground to the enemy; (4) That for every prisoner, we have taken over a hundred Germans; (5) That the above record has been due to the pride and spirit of each individual member of the Division."

Some may feel that I have painted too dark a picture of the life of the professional soldier, as though his career were only one of vexatious responsibilities. Must we expect only recriminations and no rewards? If I have painted such a picture, I have been wrong. As for all duty well done, the rewards that come to the successful commander are rich indeed. American troops, led in the spirit which I have described, will bring fame and honor to the officer who has known how to use their talents and will make his name live in the pages of history. And beyond these rewards, to have commanded troops who have rendered such conspicuous services to the Nation will bring to the officer an abiding sense of accomplishment, in having brought to the bloody business of war its redeeming virtues of human loyalty and the fraternal devotion which bind fighting men together—officers and men alike—in mutual respect.

THE MANEUVER PICTURE

MAJOR GENERAL CHARLES D. PALMER

THE SMALL TOWN of Lampasas, Texas, last year found itself captured and occupied by an "enemy" force which had "invaded" the country. With approval of local officials and other civic leaders, the five thousand inhabitants agreed to be tried without jury and have their property seized. Afterward they were thrown into concentration camps by bayonet-armed



MAJ. GEN. CHARLES D. PALMER

"invaders," played with serious realism by troopers of the 82d Airborne Division. Before the action was over the area of central Texas near Fort Hood swarmed with some 100,000 soldiers and airmen taking part in Exercise Long Horn, the largest joint Army-Air Force maneuver since World War II.

Activities such as this build and maintain the combat readiness of America's ground arms today. The Office of the Chief of Army Field Forces places field exercises high on its annual plans. The maneuver is the culmination of all Army training.

Each exercise, with its diversified problems and situations, develops the individual soldier's adaptability. Living in the open as he would in combat, he soon learns the value of teamwork. Squads, platoons, companies, battalions and regiments gain experience in working together as closely knit members of combined-arms operations. At the same time, commanders and staff officers at all levels improve their techniques in administration, intelligence, tactics and supply under the realism of terrain and weather.

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Each maneuver has its own objective. It may involve training and testing of equipment under conventional conditions of weather and terrain as in Exercise Long Horn. Or it may be used to train and test men and materiel in desert, amphibious, airborne, mountain, jungle or arctic surroundings as in the cold weather Exercise Snow Storm last winter. (See box, page 14.)

Some may be conceived as a dry run for an important strategic concept. The maneuvers of 1940-41, for example, saw the emergence of basic plans which later enabled the Allies to sweep across Europe and the Pacific. The recent simulated atomic warfare exercises at Desert Rock are even today being studied for their implications in future operational theory.

A maneuver is "born" in the Office of the Chief of Army Field Forces, Fort Monroe, Virginia. About a year and a half before the beginning of each fiscal year, OCAFF prepares a maneuver study based on the need for advancing the state of troop training toward combat readiness, and on the availability of units, field headquarters and support personnel. In the case of joint exercises, this preliminary study is co-ordinated with the Tactical Air Command or the Amphibious Force, Atlantic or Pacific Fleet. The plan is then submitted to Department of the Army for tentative approval. It is next published as a provisional "forecast" of exercises to be held during the ensuing fiscal year.

This forecast serves as a long-range alert to the major units concerned, and also establishes a tentative field exercise budget for the fiscal year. Anticipated expenses are calculated on the



Troops charge on a simulated enemy objective during Exercise Long Horn at Fort Hood, Texas.

U. S. Army Photograph

basis of the type of unit involved, the time of year and climate, presence or absence of an established military installation in the maneuver area, the distance of troops from the area, and their mode of travel. With this estimate in hand, Army representatives appear before Congressional committees shaping military appropriations. Once funds are assured, Department of the Army confirms the maneuver schedule.

From six to nine months before E-Day (Exercise Day), OCAFF sends a warning letter to the Army Commander concerned. This letter outlines the scope and purpose of the maneuver and requests that he submit, within approximately sixty days, a detailed preliminary plan.

The maneuver director writes a maneuver scenario and develops a recommended troop list, based on OCAFF's concepts. Troop units are ordered to ready themselves. Once the Army's tentative plan is received at OCAFF, it is analyzed carefully and a final maneuver directive is issued outlining the director's mission and designating the participating units. OCAFF general and special staff sections work directly with their Army counterparts, passing on the benefits of past maneuver experience and checking to see that the over-all training objectives are met.

On the basis of OCAFF guidance, the maneuver director assembles his forces, orients them and then commits them to the tactical phase. This is the culmination of two years of staff planning, the proving ground of all previous individual and unit training and an experimental vehicle for new doctrines as well.

Maneuver planning generally follows a regularized pattern. First, key personnel are sent to appropriate schools or join special planning staffs; next, the headquarters is set up, service units are brought in, the area is organized and the maneuver is planned in detail. Then the tactical units move to the area by air, motor or rail. In the maneuver area, they engage in warm-up field training, orienting themselves to the terrain and the situation. The climactic event is the tactical phase in which troops take to the field in simulated combat. Finally, engineers with road and fence repairing equipment scour the area, repairing and restoring damaged property.

Theoretically, the key phase is tactical, involving delaying action, defense, attack and pursuit by Army divisions. But frequently other phases deserve study. For example, the movement of two Long Horn divisions to the maneuver area stands as a brilliant example of careful staff work. The 82d Airborne Division travelled approximately 6,750,000 vehicle miles from Fort

TYPICAL MANEUVERS—RECENT AND PENDING

Fiscal Years 1952-1953

Exercise	Time	Place	Type of Training	Major Units Participating
Long Horn	Spring 1952	Fort Hood, Texas	Joint Army-Air Force operations, including motor movement and airlift to maneuver area.	Fourth Army-XV Corps 82d Airborne Division 31st Infantry Division 47th Infantry Division 1st Armored Division 508th Regimental Combat Team
*Snow Storm	November 1952-March 1953	Camp Hale, Colorado and Camp Drum, New York	Cold weather exercise in day and night cross country operations, defense against atomic and chemical attack and airborne operations.	301st Logistical Command 82d Airborne Division 278th Regimental Combat Team
Warm Wind	November-December 1952	Alaska—Big Delta and Fort Richardson areas	Cold climate training.	Aggressor cadre, First Army
Sea Scape	November 1952	Little Creek, Virginia	Joint Army-Navy amphibious training in ship to shore operations, individual and small unit tactics and techniques, tactical air operations, motor and sea movements and defense and countermeasures against atomic and chemical warfare.	USARAL 503d Regimental Combat Team of 11th Airborne Division XVIII Airborne Corps Hqs Tactical Air Command 278th Regimental Combat Team plus support units from Army and U. S. Atlantic Fleet.
Brush Bay	May-June 1953	Caribbean area	Jungle warfare.	USARCARIB Airborne Infantry Battalion Combat Team of the 82d Airborne Division.

*Snow Storm was conducted in three phases: a four-week indoctrination training period in November-December 1952 for selected personnel of the 82d Airborne Division at Camp Hale, Colorado; a six-week period of unit training during January-February 1953 at Camp Drum, New York; and three three-day regimental combat team exercises during February-March 1953 at Camp Drum. Certain aspects of the training coincided with and were co-ordinated with the Air Force's Exercise Cold Spot.

Bragg, North Carolina, to Fort Hood, Texas, and return. This highway travel was completed with no fatal accidents, no incidents of major importance, and with only three vehicles requiring evacuation or replacement. The movement involved 13,700 personnel and 2250 vehicles, each covering approximately 3000 miles—the largest motor movement since World War II.

The airlift of the 31st Infantry Division was successfully completed without incident from Shaw Air Force Base, South Carolina, to Temple, Texas, and from Mathis Air Force Base, Texas, to Atterbury Air Force Base, Indiana. This unprecedented move involved the air transporting of more than nine thousand men and operational equipment of a Regimental Combat Team. It was accomplished without injury to a single man or damage to a single piece of equipment.

How does an exercise get its name? For convenience of reference, each maneuver is tagged with a nickname at OCAFF. In selecting a designation, OCAFF officers seek a name which is euphonious, distinctive and related to the geographic location or to the type of maneuver. A two-word title is required. Army Regulations prescribe that the nickname of an unclassified exercise be a two-word term, in contrast to the one-word classified code names of actual operations, such as Torch and Overlord.

Almost invariably, these exercise nicknames provoke comment by press and public. Southern Pine was described as sounding too much like a free plug for a North Carolina resort town, Southern Pines. Snow Fall backfired when troops sloshed around in mud instead of drifts. Loyal Texans insisted that Long Horn should be spelled Longhorn, although admitting it could have been worse.

Maneuvers consistently provide good reading material for the public and memorable on-the-spot experience for civilians living within the maneuver area. The citizens of Lampasas, for example, were given a demonstration of life in an "occupied" town during Exercise Long Horn. Fifth column and psychological warfare activities produced their share of headlines, too. A faint odor of perfume and the thrill of soft feminine voices were injected into Long Horn by two female disc-jockeys, Lorelei for the Aggressor and Laura for the United States units. These two members of the Women's Army Corps simulated "Tokyo Rose" and "Axis Sally," beaming psychological warfare messages to opposing troops.

Out on the range, a rancher who mixed with the soldiers turned out to be a "spy." During the simulated "top-secret"

operation, a 1st Armored Division captain dressed in a cowboy outfit and posing as a civilian rancher roved among Aggressor units gathering information.

Maneuvers also mean economic activity for local citizens. Little country stores in maneuver areas sell in supermarket quantities to the deluge of Army troops. Nearby cities become alive with uniforms. This provides a temporary boom to many small communities.

Present and future Army public relations are always at stake at these times. The local civilian population tends to judge the Army by the deportment and conduct of troops on these occasions. The great percentage of impressions are favorable.

After the tactical phase is completed, the maneuver director dispatches a report to OCAFF describing the play of the exercise and pointing up problems of administration, intelligence, operations and logistics. His recommendations may have a bearing not only on future maneuvers but on Tables of Organization and Equipment, Training Manuals and tactical doctrine as well. Even before this report is received, action on some points may be started independently by OCAFF, based on preliminary reports by the director, participants and observers.

This year emphasis is being placed on small unit and division size exercises rather than large, joint operations of the field Army type. Stress is being placed on basic unit training, mobility, defense against chemical-biological-radiological attack, and economy. To save money, directives have been issued to reduce the cost of each exercise to a minimum consistent with the most effective training.

In these critical times the maneuver, big or small, is a practical means of sharpening the training of all units. It provides an unexcelled method for attaining the highest degree of readiness. Annual maneuvers are necessarily a big but important budget item because, next to combat, they are the pay-off.

THE FREE PRESS-- WEAPON OF DEMOCRACY

MAJOR GENERAL JULIUS OCHS ADLER

THE MILITARY today must be more than specialists in combat. They must also be specialists in democracy.

Democracy, as a word, is quite venerable. Plato in his *Republic* somewhat ironically calls it, "A charming form of government, full of variety and disorder, and dispensing a sort of equality to equals and unequals alike." But democracy as a living creed has come rather recently in man's history, evolved out of the blood, tears, suffering and struggle of centuries. It has come so recently that it can hardly be said to be as yet perfected. Yet with all its human imperfections, it stands as the noblest achievement of civilized man.

Those in the military service particularly must be concerned with their responsibilities in a democracy since their whole careers are dedicated to its safeguarding and preservation.

Life in a democracy imposes a three-fold obligation. First, there is the primary obligation to practice democracy here at home. Freedom never stands still. To neglect it or to take it for granted is to lose it. Justice demands that every American, regardless of creed, color or economic status, shall have equal opportunity to participate in the benefits of democracy. Every forward step toward that goal is a mighty weapon for peace.

But democratic living has another vital importance closely associated with our world mission. The United States has inherited the mantle of leadership among those nations that oppose tyranny in all its forms. This leadership is moral as well as military. Only if we demonstrate complete devotion to our democratic heritage at home, can we hope to occupy a strong moral position elsewhere throughout the world.

What we *do* is a lot more important in establishing our

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prestige than what we profess. Totalitarianism can be thrust upon people by force, but democracy must be freely chosen. It is the responsibility of all Americans to encourage that choice by enabling the oppressed and confused to see how genuine and desirable is our democratic way of life. This includes, of course, the example of our Armed Forces as they perform their duties on foreign assignment.

Hard experience has taught us that beyond our own borders we are more often judged not by our virtues but by our imperfections. The ways and wiles of the Soviet propagandist are dedicated to that purpose. Therefore, the degree by which we fall short of practicing the democracy we profess, by that degree our moral leadership may be weakened on all the continents of the globe.

Practicing democracy is not merely a matter of warm heart and good spirit. The generous impulse is a fine starting point, but in the complex world of the 1950's, a desire to do good may easily go astray unless it is directed by a pretty thorough knowledge of the forces and events that shape our day to day and month to month history. Never before has it been so vital for men of good will to be also men of sound information. This, certainly, is another of our obligations.

Because we have more printed matter issuing from the presses and more sights and sounds broadcast through the air than any other country, it is often concluded that we are the best informed of all people. Perhaps many of us are adequately acquainted with the facts and issues of our day but actually, as a nation we are not well informed. One could make a strong case for the thesis that there is more ignorance than information prevalent today among our fellow citizens.

Let me cite one or two examples from a typical opinion poll. Three thousand persons were asked, "What do you know about the Bill of Rights?" Thirty-one percent said they had never heard of it or were not sure what it was. Only 21 percent had reasonably accurate answers.

Another group was asked what was meant by "balancing the Federal budget." More than half did not know.

In another poll, 91 percent identified Bing Crosby as against 55 percent for Albert Einstein. Frank Sinatra scored 84 percent as against 49 percent for Sinclair Lewis. And at the height of the discussion of the Marshall Plan, a poll in agricultural areas showed that more than half had never heard of it.

There can be no criticism that almost everyone knows about

Bing Crosby and Frank Sinatra but one might wish that our citizenry were equally well posted on other important names and issues which may have an even greater influence on the future of this hard-pressed planet. It does not suffice for us to be strong and well-intentioned if we, as a people, are hazy about the important events now occurring throughout the world and if we do not understand the issues and principles at stake and their relationship to us.

None of us has any excuse nowadays for not being posted on world affairs. More than any other nation, we have a free, responsible press and the record is there for him who will pause and read. However, a free press does little good unless we avail ourselves of its output.

Admittedly, keeping informed is not easy. Point Four, NATO, the Schuman Plan, trade balances and many similar projects can make the head swim. There is more amusement at the neighborhood movie, more relaxation at the officers' club, but the world is bubbling and fermenting and it cannot be saved either at the cinema or the brass rail. Informed public opinion is a keystone of democracy. It would be shameful, indeed, if at a moment of crisis we made a wrong decision out of sheer ignorance of the facts.

I wish I could suggest a simple, easy way for keeping informed—some capsule, some digest, some brief summary or condensed synopsis which would keep an individual up-to-date in five painless minutes every day. Unfortunately, citizenship in a free society is not that easy. Democracy throws the ball to us. It asks us to make up our own minds independently on the basis of the facts as we know them.

How much more simply they arrange those matters in Russia. In 1920, Nikolai Lenin made a speech in Moscow in which he enunciated Soviet doctrine toward the press, a doctrine which is scrupulously observed to this day. Lenin said, "Why should a government which is doing what it believes to be right allow itself to be criticized? It would not allow opposition by lethal weapons. Ideas are much more fatal things than guns. Why should any man be allowed to buy a printing press and disseminate pernicious opinions calculated to embarrass the government?"

This is fine doctrine for anyone who is anxious to become a robot. But for Americans, for free men, the free press is still a fortress.

We justly point with pride to "freedom of the press" as one

of the four basic freedoms on which our society is founded. And so it is. Without untrammelled access to *all* facts, without the privilege of learning *all* sides of public questions, without the right to listen to *all* shades of opinion, even the perverse, foolish or outlandish, Americans would not have so rich and deep an understanding of the advantages of our own system. The free press is the major instrument that makes this possible.

Actually, however, it is not just the *free* press that performs this vital service. For what does "free press" mean? It means that the publisher or editor of the newspaper or magazine—or, similarly, the radio or television program—is free to present whatever he wishes, just so long as he stays within the laws of libel and decency. He may be biased, he may be careless, he may be incompetent, he may even be vicious—but his right to publish as he wishes is inviolable. And it must be so in any truly democratic system.

What would be the alternative to a free press? It might be a government press, as in Russia. It might be a political press, in which each newspaper is controlled by a political party. It might be a subsidized press, in which special, self-seeking interests dictate both policies and content of the organs of public information. In any of these alternatives the reader's "right to know" and to think for himself are destroyed. And when the free press is overthrown, so, quickly, are all the rest of our liberties. We need only a backward glance at the careers of Hitler, Mussolini, Peron and Stalin to assure us this is so. In each instance, as these dictators were marching, their first attack was on the press and, having overthrown it, they had a clearer path for whatever else they wished to do to their people.

Here we do not face this kind of danger. We have a free press—and we have, in addition, for the most part, a responsible press. A responsible press acknowledges that the full, objective, honest way in which it presents the news is a matter of legitimate public concern. Most publishers realize that they occupy positions of public trust and try in their news columns to fulfill their obligations by giving a fair and balanced presentation of the news. No matter how strongly their opinions are voiced on the editorial page, the hard facts are to be found in the news columns, and readers, if they wish, may make up their minds on the basis of facts, even in disagreement with the most earnest editorial views.

Responsible newspapers—and under this heading I include the great majority of those published in the United States—take democracy seriously. They dedicate themselves to inform-

ing truly their readers on what has happened and is likely to happen rather than what they would like to see happen.

If you were to study carefully the 1700 daily newspapers which serve the American people, you would find that most of them fulfill their function conscientiously. A few perhaps do not. These latter take their freedom more seriously than their responsibility and there is no court in which they can be tried except the court of reader approval or disapproval. If the public continues to support a shabby, dishonest newspaper, this type publisher is encouraged to persist in his irresponsible ways. But if the public, for its own sake and protection, *refuses* to buy the cheap, distorted publication, only two courses are open to the publisher. He must mend his ways and earn reader support or he must go out of business.

A free and responsible press is only one of democracy's weapons. Our real weapons in the crusade for long-time peace are our resources of the spirit, the ideals of democracy and human dignity by which we live. If we are ultimately to win the world, these will be the decisive weapons. And as principal defenders of the citadel of freedom we need to be as familiar with these spiritual weapons as we are with tank, landing craft and plane.

For democracy is not easy; it cannot carelessly be taken for granted. Democracy is everybody's business, and unless we all tend to this business of ours, we will find that the same fate will befall it as happens to all neglected enterprises. To be strong and secure without sacrificing our liberties, to strengthen our cherished institutions and constitutional rights, to conduct ourselves wisely in a tangled and menacing world requires all our devotion, patience and good will. Upon our common understanding and effort depends the future of our Nation and the entire free world.



ARMY WOMEN ON ACTIVE DUTY

CAPTAIN ANN CURTIN

WHILE INDIVIDUAL DEEDS of valor by women have been recorded in every war since the days of Molly Pitcher and the Battle of Monmouth, the inclusion of women in organized Army service is a relatively recent development. The Army Nurse Corps, founded in 1901, is the oldest of the women's military services.

Actually, the employment of women as Army nurses traces as far back as the Revolutionary era when General George Washington asked the Congress for "nurses to attend the sick and obey the matron's orders." Women volunteers served in that capacity in the Civil War; and during the Spanish-American War qualified nurses were engaged on a contract basis for duty in Army hospitals.

CAPTAIN ANN CURTIN, Women's Army Corps, was formerly Liaison Officer on duty with Public Information Division, Department of the Army.

When World War I ended, the Army Nurse Corps had 21,480 members in uniform, but the all-time peak was reached in World War II when slightly over 57,000 saw service, more than half of them overseas. On 5 May 1947, the Corps was integrated as one of the six officer corps in the Army Medical Service and members were given permanent Regular Army commissions.

In December 1942 dietitians and physical therapists were commissioned as members of separate corps. Five years later the Women's Medical Specialist Corps was established and absorbed the two separate corps. At the same time provision was made for the commissioning of occupational therapists.

The Women's Army Auxiliary Corps (WAAC) was founded as an auxiliary of the Army in May 1942, and recruits began training at Fort Des Moines, Iowa, that summer. Effective 1 September 1943 the Women's Army Corps (WAC) was established which placed women on completely military rather than auxiliary status and established them as members of the Army of the United States. In June 1948 the WAC became a part of the Regular Army.

During World War II, about 145,000 women served in the WAAC or WAC, 25,000 of them overseas. Since the beginning of hostilities in Korea, WAC strength has been increased from a total of 7,200 to more than 11,500; of these, about 30 percent are serving overseas.

Present plans for the utilization of women include them in all but six of the Army career fields. Exclusion is principally in the combat and maintenance fields.

Women physicians are the most recent group of specialists to be granted Regular Army status. Public Law 408-82d Congress, enacted 24 June 1952, authorizes the appointment of qualified women physicians for duty as officers with the regular Armed Forces.

Wherever they may serve, women are given assignments in accord with their professional qualifications and capabilities; in no case are they required to serve with front-line combat units or perform any duties which are inconsistent with American mores. To their variegated tasks, women in the Army bring not only professional competence but also the unique attributes of healing and service which have been woman's time-honored role in history.

The following pages contain a thumbnail guide to current regulations and requirements applicable to women—both Regular Army and Reservists on extended active duty.

WOMEN'S ARMY CORPS — (Officer)

Reserve

QUALIFICATIONS FOR COMMISSION

1. Officer Candidate Course *

Age—20 to 27 inclusive; physically qualified.

Family status—No dependents under 18; unmarried (if without prior service).

Citizenship—U. S. citizen.

Education—Score of 123 or higher on Officers Educational Qualification Test or at least 50 percent of academic credits required for baccalaureate degree. Score of 110 or higher in Area I of Army Classification Battery.

Score of 100 or better on WAC Officer Candidate Test. Service—Basic training (8 weeks), Officer Candidate Course (17 weeks) and minimum of 24 months service as commissioned officer.

Commission—2d Lieutenant, USAR.

2. Direct Appointment **

Age—21 to 39 inclusive; physically qualified.

Family status—No dependents under 18.

Citizenship—U. S. citizen.

Education—Baccalaureate degree from accredited college or university.

Service—Minimum of 2 years active duty which includes attendance at WAC Company Officer Course.

Commission—Grade in USAR determined by age and qualifying education or experience, as follows:

Grade	Age Group	Education and/or Experience
2d Lt	21-27	4 years
1st Lt	28-33	7 years
Captain	34-39	11 years

Note: Qualifying background experience must have been in teaching, business, recreation, personnel administration, advertising or fields requiring leadership and supervision of personnel.

Regular Army***

Commissions in the Regular Army are open to qualified individuals in the following categories:

Category	Action Required
1. Outstanding enlisted women and warrant officers on active duty who have completed at least two years of active Federal service.	Recommendation of major commander and interview board to The Adjutant General.
2. Distinguished graduates of Officer Candidate Course, WAC Training Center.	Recommendation of major commander to The Adjutant General.
3. Graduates of the Women's Army Corps Company Officer Course.	Recommendation by major commander to The Adjutant General.
4. Officers on active duty who have completed 18 months active Federal service.	Recommendation of major commander and interview board to The Adjutant General.

*For full details see AR 350-350 and SR 350-350-20

**For full details see SR 140-105-7

***For full details see SR 605-25-25

WOMEN'S ARMY CORPS—(Continued)

Age—Must have reached 21st birthday but not have passed 27th birthday at date of appointment in Regular Army; physically qualified.

Family status—No dependents under 18.

Citizenship—U. S. citizen.

Education—Holder of baccalaureate degree from an accredited college or university. Waiver may be granted applicants with outstanding military records who achieve qualifying score on Educational Requirement Test.

Commission—2d Lieutenant, USA.

MILITARY TRAINING

1. Company Officer Course.

Note: Obligatory for those receiving direct appointment as WAC officers.

2. WAC Officer Advanced Course.

3. Military schools appropriate to Military Occupational Specialty held by officer.

4. Advanced education within career pattern at civilian institutions.

ASSIGNMENT AND CAREER FIELD

Assigned in all officer grades through lieutenant colonel, including warrant grades, to all available career fields except combat duty or duties requiring physical strength beyond that of the average woman.

LENGTH OF ACTIVE DUTY BEFORE RETIREMENT

Reserve: (a) Complete "not less than 20 or more than 30 years active Federal service . . . , at least 10 years of which shall have been active commissioned service." Section 202, Public Law 810—80th Congress.*

(b) Those Reservists who have insufficient active Federal service to qualify under Section 202, Public Law 810—80th Congress, may qualify for retirement under Section 302(a) of the same Act. To qualify under this Section an individual must have attained age 60; have completed 20 years of satisfactory Federal service (not *active* Federal service necessarily) the last 8 years of which was service in a Reserve component; and provided such person was a member of a Reserve component on or before 15 August 1945, must have performed active Federal service during any portion of either of the two periods beginning 6 April 1917 and ending 11 November 1918 and beginning 9 September 1940 and ending 31 December 1946.

Regular Army: "Each officer appointed in permanent grade of major, who is not retired or separated at an earlier date under other provisions of law, shall be eliminated from the active list and retired 30 days after the date upon which she completes 25 years service, unless she is appointed in permanent grade of lieutenant colonel in the Regular Army. Lieutenant colonels may be retained on the active list until 30 days after that date upon which 30 years service is completed."—Public Law 625—80th Congress.**

Note: Provisions of Section 202, Public Law 810—80th Congress summarized above also apply to Regular Army.

PERTINENT REGULATIONS

Public Law 625—80th Congress

D/A Bulletin 23, 30 June 1948

AR 625-5

* See also par 1, AR 605-245

** This requirement applies to officers now entering the service. The increment of WAC officers originally appointed in the Regular Army are subject to other requirements.



WOMEN'S ARMY CORPS — (Enlisted)

QUALIFICATIONS FOR ENLISTMENT

Age—18 to 34 inclusive; physically qualified.

If under 21, written consent of parents required.

Women over 35 with prior service accepted if age does not exceed 35 plus number of years of prior active Federal service.

Family status—No dependents under 18; unmarried (if without prior service).

Citizenship—U. S. citizen or, if alien, legal evidence of declaration of intention to become citizen.

Education—High school graduate or equivalent. Achieve Minimum score on Armed Forces Women's Selection Test.

2, 3, 4, 5 or 6 years.

TERM OF ENLISTMENT

MILITARY TRAINING

1. Basic training (8 weeks) mandatory for all enlistees without prior service.
2. Leaders Course (8 weeks). To qualify, applicant must be recommended by immediate commanding officer and must score 90 or higher in Area I of Army Classification Battery.
3. Specialist Training in following fields: medical, signal, engineer, chemical, quartermaster, personnel and administration, languages, military police, finance, clerical, information and education and intelligence.

CAREER FIELD OPPORTUNITIES

Assignments within authorized career fields. Assignment as outlined in SR 615-25-36:

1. Normally quartered in groups no smaller than 50.
2. Duties only in fixed units as defined by SR 310-30-1.
3. No assignments to activities within range of enemy heavy artillery and forward of evacuation hospitals.

SERVICE BEFORE RETIREMENT

Complete from 20 to 30 or over 30 years active Federal service.

PERTINENT REGULATIONS

Public Law 190—79th Congress, as amended
Public Law 174—79th Congress, 2d session
AR 625-5

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ARMY NURSE CORPS

(Officers Only)

QUALIFICATIONS FOR COMMISSION

1. Single, without dependents under 18.
2. Graduate of an acceptable school of nursing.
3. Currently registered in the United States or a territory of the United States.

METHODS OF COMMISSIONING

Reserve: Commissions granted to qualified registered graduates of schools of nursing acceptable to The Surgeon General.

Regular Army: Complete at least six months of extended active duty in Army Nurse Corps Reserve immediately prior to appearance before an evaluation board. Must not have attained 28th birthday at time of commissioning.

ACTIVE DUTY MILITARY TRAINING

1. Basic officer training (8 weeks).
2. Military schools appropriate to Military Occupational Specialty of the officer.
3. Advanced professional education at civilian institutions (for Regular Army personnel only).

CAREER FIELD OPPORTUNITIES

No existing restrictions.

UTILIZATION

Assigned to professional nursing duties; therefore will not ordinarily perform non-nursing duties.

LENGTH OF ACTIVE SERVICE BEFORE RETIREMENT

Reserve: (a) Complete "not less than 20 or more than 30 years active Federal service . . . , at least 10 years of which shall have been active commissioned service." Section 202, Public Law 810—80th Congress.

(b) Those Reservists who have insufficient active Federal service to qualify under Section 202, Public Law 810—80th Congress, may qualify for retirement under Section 302(a) of the same Act. To qualify under this Section an individual must have attained age 60; have completed 20 years of satisfactory Federal service (not *active* Federal service necessarily) the last 8 years of which was service in a Reserve component; and provided such person was a member of a Reserve component on or before 15 August 1945, must have performed active Federal service during any portion of either of the two periods beginning 6 April 1917 and ending 11 November 1918 and beginning 9 September 1940 and ending 31 December 1946.

Regular Army: After 20 years active Federal service, a nurse may, upon her request, be retired at the discretion of the Secretary of the Army. At any time after age 50, if her permanent grade is below that of a major, or after age 55 if her permanent grade is major or higher, or after 20 years active Federal service in the Armed Forces of the United States, whichever is later, she may be retired without her consent at the discretion of the Secretary of the Army.

PERTINENT REGULATIONS

Public Law 36—80th Congress
Public Law 810—80th Congress
Public Law 514—81st Congress
AR 40-20, AR 605-245

WOMEN'S MEDICAL SPECIALIST CORPS

(Officers Only)

QUALIFICATIONS FOR COMMISSION

Dietitian, Physical Therapist or Occupational Therapist, graduate of professional school acceptable to The Surgeon General.

METHODS OF COMMISSIONING

Reserve: Direct commissions granted to qualified professional Dietitians, Physical and Occupational Therapists.

Selected college graduates may be commissioned in WMSC Reserve for purpose of participating in a dietetic internship, physical therapy course, occupational therapy course or an occupational therapy clinical affiliation conducted by the Army Medical Service.

Regular Army: Complete at least six months of active duty in Women's Medical Specialist Corps Reserve, immediately prior to appearance before an evaluation board.

MILITARY TRAINING

1. Basic officer training.
2. Military schools appropriate to Military Occupational Specialty held by the officer.
3. Advanced professional education at civilian institutions (for Regular Army personnel only).
4. Military professional courses.

CAREER FIELD OPPORTUNITIES

1. Dietetics.
2. Physical Therapy.
3. Occupational Therapy.

UTILIZATION

Assignment in professional duties only.

SERVICE BEFORE RETIREMENT

Same as Army Nurse Corps.

PERTINENT REGULATIONS

Public Law 36—80th Congress
Public Law 810—80th Congress
D/A Bulletin 6, as amended by Public Law 514—81st Congress
AR 40-25

WOMEN PHYSICIANS

(Officers Only)

QUALIFICATIONS FOR COMMISSION

1. Graduate of medical school acceptable to The Surgeon General. Licensed to practice in the United States or a territory. Completion of an approved internship.
2. Direct commission granted in Medical Corps, with grade determined by active professional practice, excluding internship but including residencies and post-graduate training.

METHODS OF COMMISSIONING

Reserve: Commissions for qualified women physicians authorized by Public Law 625—80th Congress.

Regular Army: Appointment procedures outlined in AR 605-25-10.

MILITARY TRAINING

No restrictions on attendance at advanced training schools.

CAREER FIELD OPPORTUNITIES

No restrictions.

UTILIZATION

No assignments to front-line combat units, venereal control units, or isolated units where only one physician is required.

SERVICE BEFORE RETIREMENT

Same as male Medical Corps officers.

PERTINENT REGULATIONS

Public Law 625—80th Congress
Public Law 810—80th Congress
Public Law 408—82d Congress

TOWARD LIGHTER SIGNAL EQUIPMENT

HAROLD A. ZAHL

DURING the hectic early months of the Korean war, heavy and bulky items of signal apparatus such as field radios and regimental switchboards often had to be abandoned during hasty withdrawals. As a result, large quantities of communications materiel were lost and many units had to be completely re-equipped.

The weight problem was not discovered for the first time in the Korean fighting. Objections had been raised in World War II, but the steep mountain trails of Korea spotlighted the handicap in all its wastefulness. Some way had to be found to keep troops and their organizational equipment together in spite of rugged terrain and tough battle situations.

In the case of communications equipment, the Army Signal Corps had been working on the problem long before the Korean action. Scientists in the Signal Corps Engineering Laboratories at Fort Monmouth, New Jersey, were seeking new electronic techniques and substitute materials, equal in strength and performance but lighter than those heretofore used in radios and wire communication equipment. A substantial part of the laboratories' \$75,000,000 annual budget was spent to find ways to make the infantryman less likely to leave his radio or telephone switchboard behind.

The program, known as "Miniaturization, Ruggedization, and Reliability," has already taken many pounds off the front-line soldier's back and has given him better equipment. An outstanding example is the new 22-pound field switchboard now in production. It has twice the line capacity but less than half the weight and less than one third the bulk of any previous model. When not in use, it can be folded into a case and carried like a portable typewriter. Known as the SB-22/PT (SB for switchboard and PT for portable telephone) it is designed to withstand immersion in water and extremes of temperature and

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humidity from Alaska to the Canal Zone. Any infantryman who has to lift one will feel the difference immediately. The two models it replaces weigh 48 and 72 pounds respectively.

To go with this switchboard the Signal Corps Engineering Laboratories have produced a lighter field telephone. Reduced in size by one third and in weight from $11\frac{1}{2}$ to $8\frac{1}{2}$ pounds, it will provide front-line troops with a more efficient instrument. Signal engineers also have produced a walkie-talkie radio which has about half the weight and bulk of the World War II set.

Another weight-saver is a portable teletypewriter, so light that a parachutist can bring one down on his back. Here the difference is substantial—45 pounds against 225 pounds. The new instrument is also one fourth the size of its predecessor and has three hundred fewer parts to get out of order.

Still another example of lighter, superior equipment is field wire. Every infantry communications sergeant is familiar with ordinary field wire used in communications between headquarters and outposts. The old type weighed 135 pounds per



The Army Signal Corps' miniaturization program is producing lighter, smaller but better communications. Compare the latest field switchboard in the foreground with the older model above.

U. S. Army Photograph



The new walkie-talkie radio (left) is about half the size and weight of its World War II predecessor (right).

U. S. Army Photograph

mile. Now it comes in a nylon and polyethylene plastic jacket which is notably more durable, and so flexible that the wire can be payed out of a dispenser from an airplane. The new type weighs only 40 pounds per mile, which means a weight saving of 54 million pounds per year in transportation, handling and storage. Research also added other features best appreciated by the taxpayer. The new wire is actually cheaper and requires less copper and steel, two critical war materials.

Already in use in Korea is a new, rugged telephone and telegraph cable which is one third lighter and cheaper in cost, yet performs more work than the older type Spiral 4 type cable used extensively in World War II. Taking its name from four separately covered wires which wind around each other in a diamond pattern, the new cable handles more messages over longer distances with clearer, more intelligible results. In addition, the new Spiral 4 is equipped with unique plugs and connectors for attaching one reel to the next—a feature which improves electrical characteristics and provides more uniform operation in extremes of weather.

Even greater savings in weight are just around the corner. The transistor, one of the latest marvels of electronic research and development, may supplement and partially replace the

vacuum tube. First developed by the Bell Telephone Laboratories in 1948, the transistor is a tiny germanium crystal, a by-product of zinc mining, which will amplify alternating currents, including radio waves. This means it will perform many of the functions of the larger, heavier vacuum tubes which are also more delicate and require more power for operation.

The fact that the transistor requires much less electricity to perform its job represents the greatest possible saving in weight. Most of the electricity needed to operate a radio receiver or transmitter is consumed in heating the filaments in the vacuum tubes in order that they may do their job. As a consequence, radios, either portable or mobile, required heavy battery packs or gasoline driven generators. Scientists at Fort Monmouth conservatively estimate that the installation of transistors in future radio equipment will afford an eight-to-one saving in power and a three-fourths reduction in size of equipment for which complete transistorization can be accomplished.

In addition, the transistor offers possibilities of improved reliability and simplified maintenance. Since it generates virtually no heat, entire transistorized assemblies can be encased in tiny plastic building blocks. One experimental transistor block, about the size of a pair of large dice, contains two transistors sealed in clear plastic—the equivalent of a pair of vacuum tubes—plus ten resistors, three capacitors and four germanium rectifiers. To do the same job with the smallest of today's subminiature vacuum tubes would require an assembly at least the size of a cigar box.

Already the Signal Corps has developed a transistorized piece of equipment to replace a heavier present model. The standard "converter" used with radio-teletypewriter equipment to change radio impulses to the kind of electrical current needed to run a teleprinter in the field weighs about 100 pounds and draws 175 watts of power. The transistorized "converter" weighs only 10 pounds. Moreover it requires about 1.75 watts, which is easily supplied by ordinary dry cell batteries.

Another development to bring future savings in weight is the printed circuit, or "auto-sembly system of circuit fabrication." When this process is in full use in radio manufacturing, there will be no more rat's nest of wires which require many man-hours to assemble and still other man-hours when a repair job may become necessary.

Auto-sembly is done by a photoetching process, almost as easily as a metal photo-engraving is produced for magazines and

newspapers. An electrical engineer, in effect, simply draws the pattern for a set's wiring system, after which the drawing is transferred to a copper foil-coated chassis, either by ordinary commercial offset printing or by silk-screen method. Then it is etched onto the chassis and, finally, dipped into molten solder. The result is a raised pattern on a smooth, compact surface which takes the place of wires.

Together with transistors, auto-semblly wiring will lead to the most efficient radio sets ever seen. Entire sections of wiring, transistors and other parts, can be compressed into a small panel or block. Sets composed of these units will be easily and quickly repaired on the spot. Instead of struggling with complicated wiring and a variety of tubes, resistors and the like, the repairman will merely locate the trouble, pull out the defective unit and insert a new one. Later, the faulty assembly can be returned to a repair section in the rear for salvage. Auto-semblly wiring is applicable to and is currently being considered in such wire communication equipment as telephones, telephone repeaters, amplifiers and teletypewriter equipment.

Sometimes it seems a long wait between the announcement of a new development and the day when the front-line soldier finally gets his first item as standard issue. Yet the development and mass production of lighter, better communications equipment for our troops has never been faster. Before too long the soldier may find that his arm and hand signals on the battlefield are only necessary in emergencies. He may be talking to his squad and platoon members by radio as easily as if conversing over an office intercommunication system.

"Regard your soldiers as your children, and they will follow you into the deepest valleys; look on them as your own beloved sons, and they will stand by you even unto death.

"If, however, you are indulgent, but unable to make your authority felt; kind-hearted but unable to enforce your commands; and incapable, moreover, of quelling disorder, then your soldiers must be likened to spoiled children; they are useless for any practical purpose."

Sun Tzu in The Art of War, 500 B.C.



TRAINING CENTER FOR ARMY DOGS

CAPTAIN JOHN F. RIDDICK

THE PLACE was Kobe, Japan, during the occupation years. Pilferage of supplies from docks and warehouses was getting far out of hand. To stop the theft of thousands of dollars in clothing and food, a specially trained group of one hundred and twenty-five men and sixty-five assistants was added to guard the installation. The pilferage quickly dropped to zero.

Credit for this achievement belongs mostly to the sixty-five assistants, each of which was equipped with a pair of sharp eyes, a keen nose and a set of teeth big enough to create fear in the boldest thief. They were trained Army sentry dogs.

Today the Army Dog Training Center at Camp Carson, Colorado, is receiving a steady stream of dogs and is turning them into competent assistants for our troops in combat. Camp Carson—training ground for the Army's pack animal units—was selected as the site for this unique activity because of its varied terrain. In the foothills of the Rocky Mountains near Colorado Springs, a staff of officers and cadremen, many of whom had dog training experience in World War II, opened the Center in December 1951 under direction of The Provost Marshal General.

The Remount Branch of the Quartermaster Corps purchases the canine recruits—principally German shepherds—and holds them for a twenty-one day quarantine period at Cameron Station, Virginia, before shipping them to Camp Carson. There the training consists of a three-week basic course and an eight-to twelve-week specialized course. Each animal is graduated as a specialist in sentry, scout or messenger dog operations.

The basic course establishes a working relationship between the individual dog and the soldier handler. Obedience is the first element to be taught. The dog learns to "heel" while marching, a lesson which becomes the basis for orderly movement of dogs and their handlers in the unit. To "heel" properly the dog must walk at the handler's left side, his head even with the

CAPTAIN JOHN F. RIDDICK, Military Police Corps, is Commanding Officer, Army Dog Training Center, Camp Carson, Colorado.

handler's knee. This lesson is followed by others which train the dog to "sit," "down," "stay," and "recall." Later he learns to crawl under and jump over obstacles.

Perfection in each lesson is gained through repetition. Hour after hour is spent in the field performing each exercise until the dog can be depended upon to obey under all circumstances. The noise and clash of a battlefield are part of his conditioning. To accustom the dog to sounds which would otherwise make him flinch, the training area is alive with giant firecrackers, explosive charges and rifle fire. Any dog unable to overcome gun-shyness is classified as unserviceable.

Meanwhile, soldier volunteers with special aptitude or past experience as dog handlers are learning about dog foods and feeding, care and grooming, first aid, dog diseases and parasites. They also study dog psychology, principles of training, uses and training of specialized dogs, kennel care and management, and transportation for their charges.

When the dog has completed the basic course with his handler, he goes before a committee of officers and cadremen to be selected for the specialty for which he seems best suited. An extremely aggressive dog is considered ideal for sentry work. One which rates above average in alertness and sense of smell is usually trained as a scout dog. Canines proven to be highly intelligent and which show a strong desire to please their handlers, are started in the messenger dog course.

When occasionally a dog proves to be unsuited to the training, he may be reassigned to another course in order to determine his potential in other types of operations. Of all dogs received at the Center, only about 10 percent fail completely.

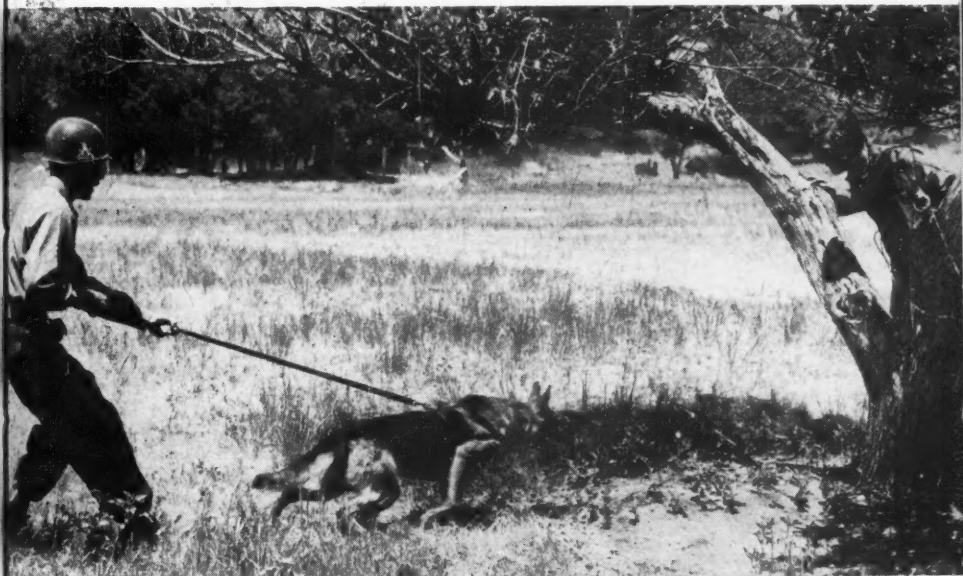
The sentry dog takes the shortest and most intensive course—eight weeks—following his three-week basic training. Starting for the training area on a choke chain, he soon learns that when the handler attaches the leather collar it means that he is "on duty." Another man, called an "agitator," approaches with a small stick and begins to tease the dog—a measure designed to arouse the animal's natural aggressiveness. The handler, keeping the dog firmly on the leash, commands "watch him."

As soon as the dog makes an aggressive move, the agitator retreats and the dog is encouraged to chase him. After each successful attempt, the dog receives lavish praise from the handler. The psychology of always letting the dog "win" over the agitator and playing on his natural desire to please his master soon makes the lesson stick. Gradually the dog is taught to



attack a padded arm guard which the agitator drops whenever the dog seizes it. The agitator later dons a long padded garment for better protection; he runs and the dog is urged to chase him. Next, the dog is permitted to attack the suit while on his leash. Finally he is unleashed and taught to attack and to release his hold on command from the handler.

In addition to attacking on command, the sentry dog learns to ferret out intruders by scent. When fully trained, he can walk patrol around an isolated installation; he may ride patrol in a jeep, always alert for smells which no human could detect; or he may be allowed to roam off leash in warehouses, airplane hangars and fenced storage yards. The dog's readiness to attack on command leaves his handler free to use his weapon. The ever-present human fear of a vicious dog plus the dog's alertness in detecting intruders make him invaluable in security work.



A scout dog, trained to accompany an infantry patrol in combat, learns to lead his handler silently to an enemy.
U. S. Army Photograph

The scout dog's twelve weeks of specialized training fit him for a different mission in the Army. Working from a harness instead of a collar, he learns to detect by smell a human decoy somewhere upwind in the training area. With friendly encouragement from his handler, he learns what is expected of him when the command "search" is given. Immediately he starts



Learning to "sit" is part of each dog's basic course. Three weeks are devoted to obedience training.

Sentry dogs are trained to attack strangers or intruders on command from the handler.



Guarding a fenced enclosure is one of the lessons in the training course for sentry dogs.

sniffing the wind and the ground for a scent. As soon as he detects the presence of the decoy, he gives some little sign, such as straining on the leash or raising the hackles along his neck or shoulders. Each dog has his own way of "alerting" his handler, who must watch carefully for the signal. While "reading" the dog, the handler must prevent his barking, growling, whining or otherwise making a noise which would be audible to a lurking enemy. Such a reaction on the dog's part might be fatal to both dog and handler in combat.

Next the dog is urged to move silently toward the decoy, who runs away. Though still held on the leash, the dog is allowed to give chase and is dutifully praised by his handler after each successful performance. After learning the basic rules, the dog is then trained to detect decoys planted farther and farther away. Lessons are repeated under varied conditions, at different times of the day and night, until the animal becomes expert enough to detect a decoy at distances up to five hundred yards or more.

The scout dog has many uses in combat and is valued especially by the infantryman. Taken with patrols into no-man's-land, this keen-scented guardian reduces the chance of fatal surprise or ambush by giving silent warning of a concealed enemy. During the hours of darkness or when visibility is poor, he can guard command or observation posts against enemy infiltration, a problem which has been acute in Korea. Or he can act as a sentry dog at small supply dumps.

The third type of Army dog developed at Camp Carson is the messenger dog—the only type which learns to work with more than one handler. Training begins by friendly association with two handlers. After he develops a strong fondness for both men, the dog is taught to run from one to the other. One handler releases the dog and commands the animal to "report." As soon as the dog reaches the second handler he receives warm praise. Just before the dog runs, his choke chain is removed and a messenger collar is put on. Soon he learns to associate this collar with his job of running from one man to the other.

As the lessons proceed, the distance between the men is increased beyond the range of the dog's vision. He now learns to trail his masters by scent. Frequent repetition and runs of varied distances over different kinds of terrain finally develop his dependability as a messenger. In training, the dog customarily carries a pack which can be loaded with supplies or ammunition. He also learns to lay field telephone wire from a spool mounted on a specially constructed pulling harness. Before



Taking a hurdle while off the leash, this dog is obeying his handler's command "Up and over."

The messenger dog carries loads up to thirty pounds. Some day he may carry ammunition to a platoon under fire.



being graduated as fully trained, he must be able to follow a scent up to distances of five miles. He must be able to carry up to thirty pounds of ammunition and supplies over rough terrain. He must demonstrate his capability in carrying and stringing a one-mile spool of telephone wire between two points.

Dogs have long been recognized by military authorities as important for war and security purposes. During World War II the Army operated several centers for training war dogs and their handlers. Fort Robinson, Nebraska, the largest center, had as many as two thousand animals in training at one time. But with rapid demobilization, dogs were trained and used only locally in occupied areas of Japan and Germany.

Following the Korean outbreak, Major General Edwin P. Parker, Jr., then the Provost Marshal General, took steps to re-establish an Army Dog Training Center. Sentry dogs would naturally aid the Military Police Corps in its security missions but they could also be highly useful in other branches, including the infantry, General Parker maintained. He therefore planned the Center as a place where dogs could be trained for all types of military duty.

While the Center has yet to reach full capacity operation, the completion of each successive training cycle means that ever-increasing numbers of trained canine sentries, scouts and messengers will be given a chance to serve around the world. Currently, dog platoons are proving their worth with the Seventh Army in Europe and with the Eighth Army in Korea.

"Victory is gained, not by weight of numbers and untrained courage, but by skill and discipline . . . A thoroughly trained man will be bold and confident in action; one has no hesitation in undertaking work with which one is perfectly familiar. A small trained force is the best guarantee of success; a raw undisciplined host is foredoomed to destruction."

*Vegetius in Epitome of the Military Art,
Fourth Century A.D.*



NEW YORK PROVIDES ITS OWN GUARD OFFICERS

BRIGADIER GENERAL GERARD W. KELLEY

TWO HUNDRED AND TWENTY-FIVE young men from the State of New York, newly outfitted in dark blouses and pink trousers, raised their right hands and took the oath of office last fall as second lieutenants in the New York National Guard and the Army Reserve. Though thousands of other young men have gone through similar graduation ceremonies and emerged with bright gold bars on their shoulders, there was something different about this group. Their rise to the ranks of commissioned officers had been made along a newly opened path.

Until recently, there were only five major ways of obtaining an Army commission—by graduation from the United States Military Academy, by graduation from a senior ROTC course, by direct appointment as a qualified specialist, by successful com-

BRIGADIER GENERAL GERARD W. KELLEY, NGUS, is Superintendent of the New York National Guard Officer Candidate School.

pletion of a branch officer candidate school, or by completing the 10 Series of Army extension courses.

Now, however, a sixth way has been opened. In New York and three other states—California, Massachusetts and South Carolina—a young man may seek a commission through a National Guard state officer candidate school. New York has five such schools located in Brooklyn, Manhattan, Troy, Syracuse and Buffalo. To be admitted, an applicant must be a high school graduate of good moral character who has passed a physical examination similar to the final type given at Army and Air Force installations. He must have completed at least one year of service as a Guardsman, and must be between 20 and 27 years of age upon graduation. He must also be draft deferred.

The schools were first opened in the fall of 1951 to meet a critical shortage of company grade National Guard officers. Additional second lieutenants were needed to fill existing vacancies and to replace losses due to normal attrition. The only previous sources of officers for the Guard were selected enlisted men with World War II service, transfers from other reserve components, and Guardsmen who had completed the 10 Series extension courses of the Army General School.

The first two sources never provided more than a small trickle of officers and the 10 Series extension courses, while designed to meet the needs of the Guard, did not prove entirely satisfactory for several reasons. Completing the course was often a long drawn out process which might take the average man two and a half years, during which time he ran the risk of becoming discouraged and dropping out. Moreover, because it was a correspondence course, it penalized the man with native leadership qualities who might be unable to express himself in writing.

On its own initiative, New York had tried various methods of obtaining properly qualified junior officers. Major General Karl F. Hausauer, Commanding General of the New York National Guard, tried to have the 10 Series extension courses issued in bulk to the various units and have qualified Guardsmen commissioned on a probationary status, until they could complete the requirements for a commission. This attempt met with no success. Several Guard units even organized officer candidate schools at their own armories. Finally, in 1950 the National Guard Bureau of Department of the Army announced criteria for the establishment of accredited National Guard state officer candidate schools. General Hausauer thereupon directed his staff to organize such a school and establish branches at the

armories of the 106th, 165th, 105th, 108th and 174th Infantry Regiments.

Each branch school is organized as a subsidiary of the New York National Guard Officer Candidate School under the immediate command of the Superintendent. Subordinate to the Superintendent are the Commandant and the Academic Dean. The Commandant is charged with the tactical, disciplinary and leadership training of the candidates. The Academic Dean has charge of the various branch school faculties; he supervises the academic work and advises the Superintendent on academic matters. Each branch school in turn is headed by an assistant commandant and a staff consisting of an administrative officer, supply officer and tactical officer.

The curriculum is divided into three phases—Leadership, Academic Training and Performance. A candidate must pass all three consecutively to qualify for a commission.

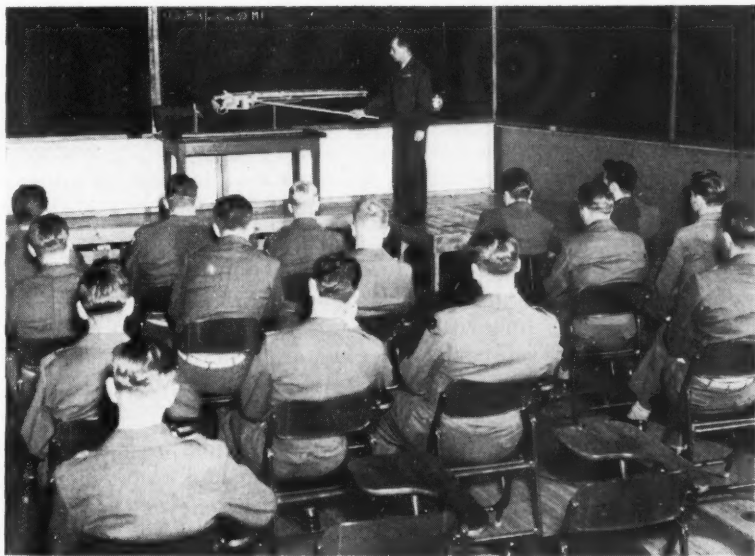
The leadership phase, shortest of the three, is unique with the New York National Guard schools and is not required under National Guard Bureau standards. It consists of 44 hours of drill field and classroom instruction for one week each year. Its purpose—to teach the new candidates something about the psychology of leadership, methods of military instruction, and drill and command. Unless a candidate has previously completed such instruction at an Army service school or in ROTC training, he must take the course. Candidates report to Camp Smith, Peekskill, New York, on a Sunday, are assigned to platoons and given an orientation and study assignments for the week. The course ends with a two-hour examination on Saturday. Those who fail must try again the following year.

The academic phase is the longest and most important, consisting of 143 hours of classroom and drill floor instruction plus 74 hours of home study. The candidates attend a branch school for 13 week-ends. The course, as outlined by the Army General School, consists of 18 subjects: Organization of the Armed Forces, 6 hours; Leadership, Discipline, Courtesy and Customs of the Service, 3½ hours; Drill and Command, 27 hours; Physical Training, 10 hours; Map Reading, 10 hours; Photo Reading, 6 hours; Interior Guard, 6 hours; Military Hygiene and Sanitation, 6 hours; First Aid, 5 hours; Individual and Local Security, 7 hours; Camouflage and Concealment, 6 hours; Scouting and Patrolling, 8 hours; Signal Communications, 8 hours; Military Law, 10 hours; Administration, 9 hours; Individual Weapons, 9 hours; Individual Clothing and Equipment, 2½ hours; and

Combat Formations, 6 hours. The remaining hours are utilized for review and examination.

Performance, the final phase, is conducted by the major Guard unit commanders during the annual two-week summer encampment. It tests ability by giving candidates actual leadership responsibility with troops. Since each major command normally conducts a recruit school at this time, there is ample opportunity for every candidate to prove himself. Initially he acts as an assistant instructor and receives a rating on his performance. The second week finds him assigned to a specific T/O&E position in a company or battery commensurate with his future duties as a commissioned officer. Again, he is rated. At the end of the field training period all ratings are forwarded to the School Headquarters and major commanders concerned are notified of those recommended for commissions.

Instructors are New York National Guard officers who are assigned to the branch schools on the basis of two instructors to each twenty-five students. They are selected for their previous experience as instructors in Army service schools, as teachers in civilian life or as World War II combat veterans. Two Medal of Honor men, Captain Almond E. Fisher and Captain Charles W. Shea, are on the staff. In addition, outstanding graduates of the



Students attend a lecture at the Buffalo National Guard Armory, one of the branch schools for officer candidates. New York National Guard Photograph

first OCS class are currently being utilized as junior instructors.

Training standards are high. All instruction is conducted or supervised by an officer, and the conference method is used whenever possible. This requires that the candidate prepare in advance to lead the discussion of any scheduled subject.

Frequent examinations keep the candidate on his toes. All examination papers are forwarded to the Army General School at Fort Riley, Kansas, for grading. In courses where the bulk of the instruction is practical work, each student must receive a "satisfactory" or higher rating from his instructor. If a candidate falls short of passing grades in more than two subjects, he is dropped from the school. All subjects must be passed before graduation. Discipline also is strict. Bearing, appearance and conduct must be that of a commissioned officer, and the highest standards of personal integrity and military courtesy are demanded at all times.

In addition to their academic studies during the week-end school, the candidates are given responsibilities as company officers and noncommissioned officers. Assignments are rotated weekly to enable each man to try his leadership ability as company commander, company executive officer, platoon leader, first sergeant and platoon sergeant.

A demerit system helps instill habits of discipline and responsibility. Each candidate is credited with 100 points at the beginning of the academic year and for each demerit administered during the term he loses one point toward graduation. He can expect to be dismissed if he receives as high as 50 demerits. Demerits may be given for such derelictions as poor posture, untidy appearance, lateness at a formation, talking in ranks, neglect of military courtesy or inattention in class.

While such offenses are worth only one demerit, others, such as absence from a formation, disorderly conduct, repeated and inexcusable mistakes during drill or neglect of duties, will bring the candidate five demerits. Only in an emergency can a candidate expect to be excused from a class or formation. An absence of two week-ends, or four school days, is cause for dismissal or being turned back to the next class.

At the beginning of each week-end class session, formal inspections are held by the company tactical officer and no deficiencies are overlooked. Other inspections are held whenever the School Commandant deems necessary.

A branch school board consisting of the Assistant Commandant, the company tactical officer and two instructors meet to



National Guard officer candidates march to class. Arm bands designate platoon and squad leaders.
New York National Guard Photograph

consider all cases involving dismissal from the school. The procedure of the board is much like that of a court, in which the defendant may have his own counsel and must be present during testimony by witnesses. Besides disciplinary reasons and academic deficiencies, a candidate may be dismissed for weakness in leadership or lack of motivation. Or, at his own request, he may be relieved as the result of a physical defect, economic hardship or compassionate reasons.

The branch in which a graduate may be commissioned depends upon the vacancies which exist. In most instances he is commissioned to fill a vacancy in his old unit. Graduates are commissioned with a waiver which must be removed by further study through extension courses or attendance at the Officer's Basic Course at an Army service school. At present, nearly one hundred of last year's graduates are taking associate basic courses at such schools.

The opening of this National Guard avenue to commissioned status offers an important advantage over the established methods of attaining a commission—namely, in freedom from interruption to an individual's civilian career or education. Normally,

a young man enlisting in the Guard at 17 or 18 will continue his Guard service and civilian activities in a draft exempt status. Upon reaching his twentieth birthday he may apply for Officer Candidate School. And, assuming that he is physically and mentally equipped for the course, he should have no trouble entering. At the present time, there are more vacancies for junior officers in the National Guard than can be filled.

Training at Army Officer Candidate Schools for Guard Personnel

The Department of the Army recently announced a new training program for National Guardsmen permitting them to attend Army Officer Candidate Schools without obligation to remain in the active military service upon graduation. The program is open to both enlisted men and warrant officers of the Guard.

Purpose of such training is to assure a steady flow of trained junior officers to National Guard units from Army Officer Candidate Schools, in addition to the other sources now available. Formerly, National Guardsmen were required to enlist in the Regular Army and accept obligation for a period of active military service upon graduation from OCS as a prerequisite to pursuing such officer training.

Upon being chosen for officer training by state Guard authorities, and meeting entrance requirements, those selected will train in their National Guard status and grade. When graduated and commissioned second lieutenants, they may return immediately to their Guard units. Under Army Regulations, distinguished graduates of OCS are eligible for appointment as second lieutenants in the Regular Army, subject to release by the State Adjutants General.

Guard enlisted men and warrant officers must be at least 20½ and not more than 27 years, four months of age, at time of enrollment in OCS. Candidates will be designated for a specific Table of Organization unit vacancy before selection for such training. Trainees will be carefully screened on the basis of eligibility and leadership qualities. Upon commissioning, the Guardsmen will return to their units as Federally recognized officers of the National Guard of their states.

FROM CLUBS AND SPEARS TO AUTOMATIC WEAPONS

LIEUTENANT COLONEL GEORGE M. CHINN

III—Early Machine Gun Development

IF ONE ACCEPTS the United States Patent Office definition, perhaps the weapon most in keeping with the acceptable idea of producing volley fire was the Requa battery. This caliber .58 gun was built late in 1861 by the Billinghamurst Company of Rochester, New York. It was publicly demonstrated in front of the Stock Exchange Building in New York City in the hope of interesting private capital in manufacturing it for Army use.

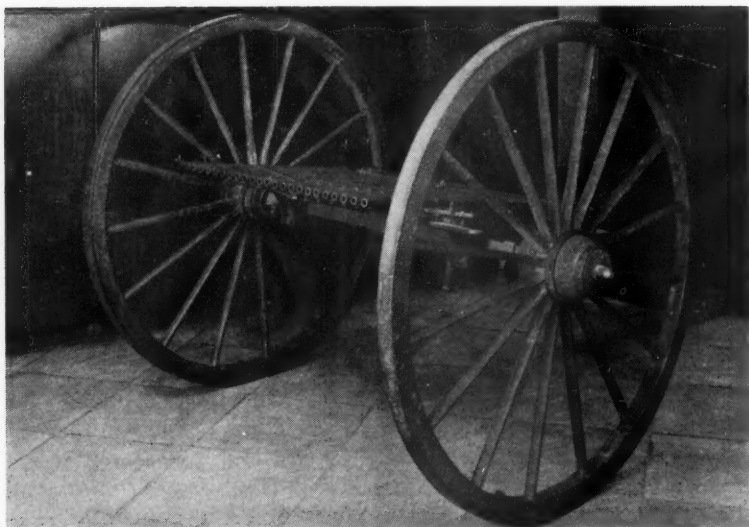
This gun had twenty-five barrels, mounted flat on a light metal platform. The sliding breech mechanism was operated by a lever. Charging was accomplished by means of light steel cartridges held in special clips.

During the Civil War, this gun became known as the "covered bridge" gun. Practically every important crossing over a stream was in the form of a wooden bridge, with roof and side-walls to protect the floor and under-structures from the weather. As these covered bridges were usually long and narrow, one of these weapons in the hands of an alert crew could break up a quick charge by the enemy, either on horse or afoot. The barrels could be adjusted to the necessary height and width. With a crew of three men, the weapon could be fired at the rate of seven volleys, or 175 shots per minute. The effective range was thirteen hundred yards.

In the field, however, the Requa battery had its limitations. Dampness in the unprotected powder train would render it useless. Consequently, it was unfit for offensive service but very effective in defense of a restricted field of fire.

Another machine gun used by the Union forces was the Ager, better known as the "coffee mill" gun. The nickname was derived

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The Billinghurst Requa battery was used by Union forces to break up Confederate troop and cavalry charges with volley fire.

from its being crank operated with a hopper feed which closely resembled the contemporary kitchen coffee grinder. This gun, the invention of Wilson Ager, an American, was a hand-cranked, revolver-type weapon that used either loose powder and caliber .58 ball projectile, or an impregnated paper cartridge. The ammunition was loaded into steel containers which did double duty as cartridges and explosion chambers.

The Ager weapon was purposely made not to exceed a speed of one hundred and twenty shots per minute, since it used only a single barrel. The heat from rapid firing was considered a serious drawback. Subsequently the inventor arranged an ingenious cooling device. The superabundant heat was rapidly carried away by a stream of air driven through the barrel and around a jacket surrounding it. Besides this artificial cooling, it also had many construction features that were either new or improved, such as a quickly detachable barrel. Two spares were carried as a further means of overcoming the heating problem. Speedy elevation and traversing was effected by a ball and socket joint mounting which could be locked at any desired position.

The Ager gun was an advanced weapon for the Civil War era. But there was no military demand for a machine gun. Contemporary authorities condemned it as requiring too much

ammunition ever to be practical. Also, from the fact that it had only one barrel, they reasoned it could never reach sustained fire to the extent of being considered an effective arm. Quite a few guns were bought, but they were relegated to covered bridge duty with the Requa battery; in only a few isolated instances were they actually used in battle.

Of the other firing mechanisms that appeared soon after the outbreak of the Civil War, the most notable was the Claxton. This weapon consisted of two rifle barrels placed side by side on a framework in such a manner that the pair of barrels were always in alignment with the two sliding breech mechanisms. This temporarily formed a double-barrel, breech-loading rifle that operated by the manipulation of a pump handle located between the two breech actions.

The handle was worked by one man, while another fed the cartridges by hand into a short magazine feeder. Rapidity of fire was governed by the physical ability of the soldier to work the handle to and fro. The manual feeding was far from positive and had a tendency towards an erratic rate of fire. Eighty rounds a minute was considered maximum.

To Captain D. R. Williams of the Confederate Army goes the distinction of inventing the first machine gun to be used successfully in battle. This weapon, a one-pounder, with a bore of 1.57 inches and a barrel four feet in length, was mounted on a mountain howitzer style limber and drawn between shafts by a horse. It was adopted by the Confederacy's Bureau of Ordnance at the very beginning of the Civil War, and was looked upon as a secret weapon.

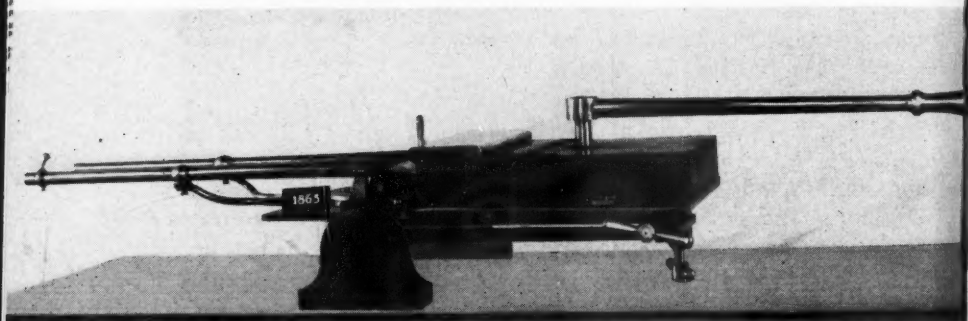
The rate of fire was sixty-five shots per minute and by actual test in battle the mechanism proved extremely reliable. The only trouble encountered was that after prolonged firing the breech would expand from the heat; as a result it failed to lock securely until the barrel had cooled enough to permit the bolt to go fully into battery.

The extreme range of the Williams gun was set at two thousand yards and, when several were operating at one time, unheard of fire power for this era was attained. The most effective official use was its initial test in battle. On 3 May 1862, at the battle of the Seven Pines, Virginia, under the direction of the inventor, a battery of the weapons opened fire on the Union forces with telling effect. This battery was attached to Pickett's Brigade. Later, when some Union officers were captured by the same Confederate forces, their first inquiry was concerning the

strange rapid-firing guns used on them at Seven Pines. It clearly made a great impression on the Northern troops.

The Confederacy also developed a two-inch bore, five-shot machine gun during the war. Used in the siege of Petersburg, Virginia, it was captured by Union troops on 27 April 1865 at Danville, and sent to the Ordnance Laboratory at the United States Military Academy.

Another machine gun, under construction by the Southern forces, was the invention of their Chief of Ordnance, Major General Josiah Gorgas. It was a single-barrel, cast-iron, smooth-bore affair, caliber 1.25 inches.



The Claxton machine gun of Civil War days was capable of delivering eighty rounds a minute. Ammunition was fed manually into the magazine and the pump handle was moved back and forth for firing.

General Gorgas, a native of Pennsylvania and an 1841 West Point graduate, was an outstanding artilleryman during the Mexican War. He resigned his commission in 1861 and was made Chief of Ordnance of the Confederacy. His own version of a machine gun was not perfected in time to be tested in battle. However, his tactical use of the light and mobile smooth bore cannon, using canister or grapeshot somewhat in the form of an oversized shotgun, produced a deadly effect against personnel. It showed the lethal results of concentrated fire and the need for controlling dispersion.

The North was deprived of a great ordnance officer when Major General Gorgas joined the Confederacy, but this loss was more than offset when Richard Jordan Gatling moved to the North in 1844. Gatling's father had invented a machine for planting cotton and another for thinning the plants to a stand. Richard, who helped in the construction of these mechanical aids, developed a rice planter. His machine gun, patented in 1862, was designed to defend buildings, causeways and bridges. The

first model was only a crude forerunner of the gun he soon perfected, the prototype of one of the most remarkable firing mechanisms of all ordnance history—the Gatling gun.

The weapon was the logical outgrowth of the trends portrayed in the Ager and Ripley guns. Gatling combined the best principles of both and overcame their most objectionable features. His successful results caused him to be credited generally with being the father of the machine gun.

His first gun was crank-operated with six revolving barrels, each equipped with a bolt. Cocking and firing were performed by cam action and the weapon was gear driven. This model, however, had many of the bad features of its forerunner, the Ager. It used paper cartridges and steel chargers that acted as firing chambers.

In December 1864 Gatling finished an improved model and a month later submitted it to the Army Ordnance Department for test. A trial was ordered and carried out satisfactorily. The improvements made by Gatling were hailed as a real success. The fact that his model had completely overcome all gas leakage at the breech was viewed as the greatest accomplishment.

The development of the improved Gatling weapon divided military men into two schools of thought. One believed it should be an artillery support; the other considered it a special objectives gun for bridges or street defense. Neither recognized its true mission as an infantry weapon.

The gun was officially adopted by the United States Army on 24 August 1866 after strenuous tests. An order was placed for one hundred guns. Fifty were to have one-inch caliber; the remainder were to use the service ammunition for the caliber .50 Army rifle.

In 1866 Gatling completed a further evolution in design which divorced the machine gun for all time from the percussion nipple on a steel cartridge container and substituted instead the center-fire brass cartridge. In doing this he developed the kind of bolt assembly used in so-called "modern" machine guns.

With the Civil War over and the arms embargo on foreign sales lifted, the Colt Company appointed representatives for the purpose of introducing and selling Gatling guns through the world. They met in open competition the best that Europe had to offer. In every instance where a properly designed cartridge was used, the Gatling gun outshot everything else under consideration and successfully met dispersion trials against artillery loaded with grape.

The United States Navy on 30 May 1868 concluded tests on the improved Gatling gun and a board, appointed by the Navy's Bureau of Ordnance, reported that, to its knowledge, the gun tested by them had no superior.

Although almost ignored in the Civil War and practically untested in battle, the Gatling slowly but surely impressed observers of all nations that, when used with suitable ammunition, it was the most reliable firing mechanism yet designed. The French successfully used a few in the Franco-Prussian War, while the much publicized rapid-firing weapons of European origin were being proved utter failures. For more than forty years thereafter, the Gatling was used by nearly every major power and influenced world events in no small manner.

The Russians in 1871 adopted the Gatling and ordered four hundred chambered for the Russian infantry rifle cartridge. Years later Gatlings were manufactured in Russia's own arsenal as Gorloff models, so designated for the general who headed the mission which purchased the weapons. Finally, when the Russo-Turkish War came, the Russians were fully equipped with Gorloffs. The Turks had the same weapons, but theirs were called Gatlings.

Colt representatives sold the rifle-caliber guns with an improved feed to Egypt, Morocco, China, Japan and practically all South American countries. The English navy used Gatlings against the Peruvians in 1877, put them ashore against the Zulus in 1879 and at Alexandria in 1882. More than any other weapon, it helped change the odds in Britain's favor during her days of empire building.

The United States, however, was in the midst of peace. There was nothing to warrant the expenditure of ammunition except an occasional Indian uprising which was suppressed by the Regular Army. Although it is recorded that each detachment in the field had several of these guns on its allowance list, nothing can be found to show their use in the Indian warfare on the Western plains.

When General George Custer's entire troop was annihilated at Little Big Horn in 1876, his headquarters had on hand four of the ninety-pound Gatlings having a rate of fire of one thousand rounds a minute. These perfected weapons were designed especially for animal transportation, and could be fired from horseback or from the ground on a tripod mounting. Had General Custer taken with him only one of the four that were available, the phrase "Custer massacre," so well known to every

school child, might conceivably have had a reverse meaning.

In the war with Spain in 1898, American troops for the first time fired a Gatling gun at a foreign enemy. This event might well have never taken place had it not been for the audacity of one man, Captain John H. ("Gatling Gun") Parker. Having recognized the potentialities of this new kind of weapon, he asked that he be allowed to organize a Gatling unit against the Spaniards at Santiago in Cuba. His immediate superior opposed Parker's plans. However, he carried the request to the commanding officer, General Joe Wheeler, who not only liked the suggestion, but directed Parker to get together the proper men and equipment to operate and maintain the guns.

Parker's effective work against the enemy is a matter of history. As a result of his theories on the employment of the machine gun, the Army high command commissioned him to "devise a form of organization for machine guns to be attached to regiments of infantry." For the first time, thirty-six years after the Gatling was introduced, the Army recognized its value in offensive warfare and gave it a place in future planning.

Gatling patented his first improvement on the gun—the center-fire firing pin—in 1871. In the next year he reduced the size and weight. This patent covered most of the features of his caliber .45 camel gun, so called because it could be easily transported on mules, horses or camels, and was useful in mountain or desert countries. The gun had ten barrels, weighed one hundred and twenty-five pounds and fired at a rate of six hundred rounds per minute. In 1876 the weight of the gun was brought down to a little over ninety pounds. It fired sustained bursts at seven hundred rounds per minute and short bursts at one thousand rounds per minute. By 1880 Gatling was getting fire at a rate of twelve hundred rounds per minute from his light gun. Three years later James G. Accles, an employee of the Gatling firm, patented what has since been known as the Accles feed. This refinement which made the weapon even more reliable, is the grandfather of the drum feed we know today.

Two patents were granted Gatling in 1893 for a flat strip type feed and for a rifle-caliber gun with an electric motor built into the rear of the gun casing. The motor could be detached and replaced by a hand crank should no power be available. This power-driven weapon was fired in tests at the phenomenal rate of three thousand rounds per minute. Production of a reliable mechanism capable of this terrific volume of fire placed Gatling's design as far ahead in the power-driven field as his reliable

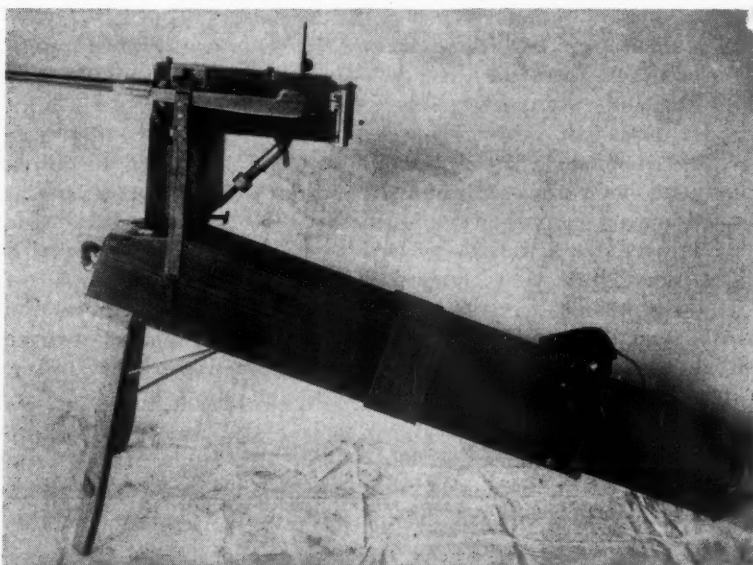
hand-cranked gun had been with respect to the manually operated weapons of 1865.

In 1895 a device was designed for eliminating the electric motor and converting Gatling machine guns to automatic. It did not entirely eliminate the hand crank, but used it only to sear off the first round; thereafter the gun became gas-operated.

No automatic Gatling, either electric or gas operated, was ever accepted by our armed forces. However, the crank-operated guns were rechambered for the latest model cartridges caliber .30-40 and .30/06 and the Colt firm continued to produce them until they were declared obsolete by the United States Army in 1911.

Gatling lived to see his weapon progress from loose powder and percussion cap to primed metallic ammunition, from black to smokeless power, and from hand crank to electric drive and thence to full automatic.

It remained for Hiram Stevens Maxim—a quick-witted Maine inventor who devised, among other things, the earliest automatic sprinkling system, and who pioneered in using electricity for illumination—to combine for the first time the words “automatic” and “machine gun.” He accomplished this by using the power of the recoil forces generated from the explosion of the powder charge in the cartridge to produce the entire cycle of

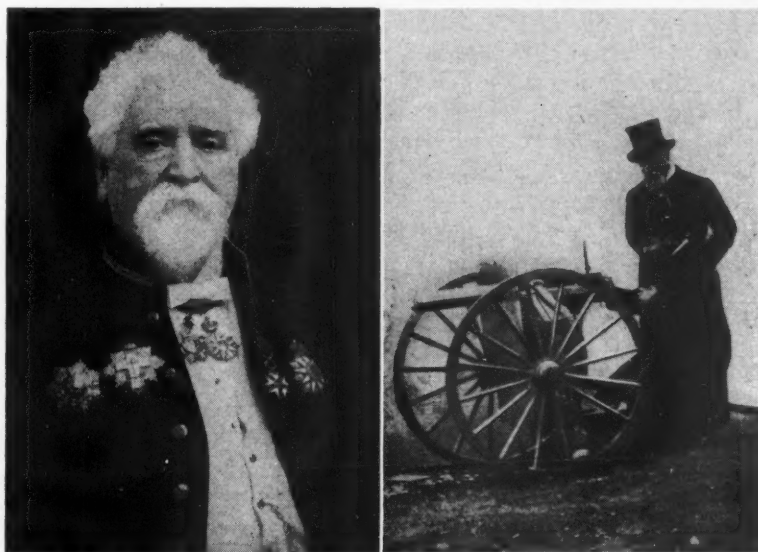


The mount of this early model Maxim machine gun served as a container for one thousand rounds of belted ammunition.

operation. The only human energy now required was for releasing the sear. The internal forces of the gun performed the loading, firing, extracting, ejecting, and cocking of the piece. The simple mechanism which Maxim originated as a first attempt was so successful that for the last sixty-four years his gun has been basically unchanged.

From the time the gun was first demonstrated in 1884, it proved to be lighter, faster and more accurate than any other machine gun in existence. Demonstrations of the belt-fed, rapid firing mechanism were staged in Great Britain, Switzerland, Italy, Austria and Germany. In a competition at Spandau in 1888, Maxim pressed the trigger and fired 333 cartridges in less than half a minute. The Kaiser, much impressed, walked over to the gun and, placing his hand on it he said, "That is the gun—there is no other."

The Maxim gun was first used by the British colonial forces in the campaign of 1893-94 against the Matabele of the Northern Transvaal. A detachment of fifty infantrymen with four Maxim machine guns defended themselves against five thousand warriors who charged five times in an hour and a half. All of these fanatical charges were stopped about a hundred paces from the



In recognition of his inventive genius, Hiram Maxim (left) was knighted by the British Government. At right, the late King Edward VII, then Prince of Wales, fires the Maxim gun as the inventor looks on.

English firing lines by the lethal fire of the Maxim guns. The enemy left three thousand dead in front of the English position.

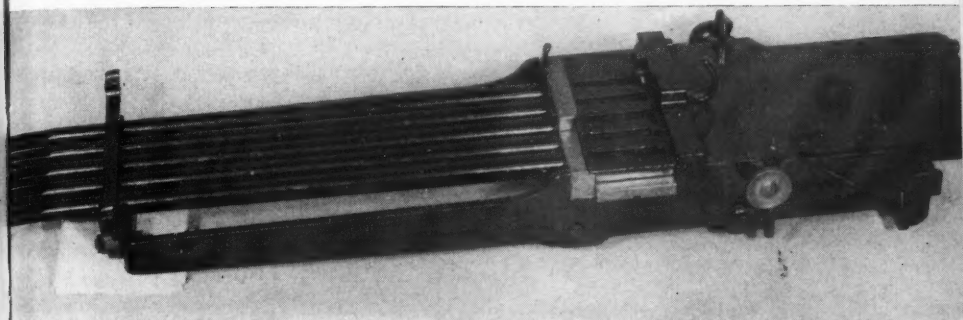
In the Chitral campaign on the Afghan frontier in 1895, the English again used their Maxim guns against the fanatical mountaineers of the Hindu Kush. The guns were also extremely successful in the 1898 campaign in the Sudan. It is stated that General Kitchener could not have held out had it not been for them. A battalion had two machine gun sections, each organized as a battery of four Maxims mounted on wheeled carriages. Each gun had a silk cover to protect it from the desert sands until it was brought into action.

At Ferkeh, on 7 June 1896, the four guns were only in action for a few minutes, but in this time they broke up the Dervishes' only attempt to charge. Perhaps the battle of Omdurman was the classic example of the deadliness of the weapon. No less than twenty thousand Dervishes were slaughtered and three-fourths were officially credited to the Maxim machine gunners. In this famous action, in which Winston Churchill participated in the cavalry charge with the Twenty-First Lancers, British casualties amounted to less than 2 percent while the enemy was practically annihilated—all due to the deadly Maxims.

In 1898 Maxim produced a long-range caliber .75 machine gun with a disintegrating bullet. The projectile was made up of several segments, arranged around a central steel core and held together by rings of lead. A cutting device on the muzzle allowed the gunner either to fire a solid armor-piercing bullet at great range, or to spray fragments at close quarters.

Maxim's next development was the pom-pom, an automatic 37-mm. shell gun, with an operating mechanism basically the same as the rifle caliber gun. The name was given to it by African savages trying to describe its unusual report during automatic fire. Ironically, the pom-pom, developed in association with Nordenfelt at the request of the British Government, had its first success in the Boer War, firing against British troops. The weapon had been turned down by the British Army. The Boers purchased their guns from the French, who had bought a considerable number, ostensibly for their own use.

The pom-pom fired faster than four hundred rounds a minute. When the King of Denmark saw the weapon demonstrated and learned that the cost per round was six shillings six pence, he stated, "That gun would bankrupt my kingdom in about two hours." The British Government, however, still smarting from the lesson handed it by the Boers, adopted the weapon and



The multibarrel Nordenfelt gun in use after 1880 had a special device to scatter volleys for increased effectiveness at close range against massed enemy troops.

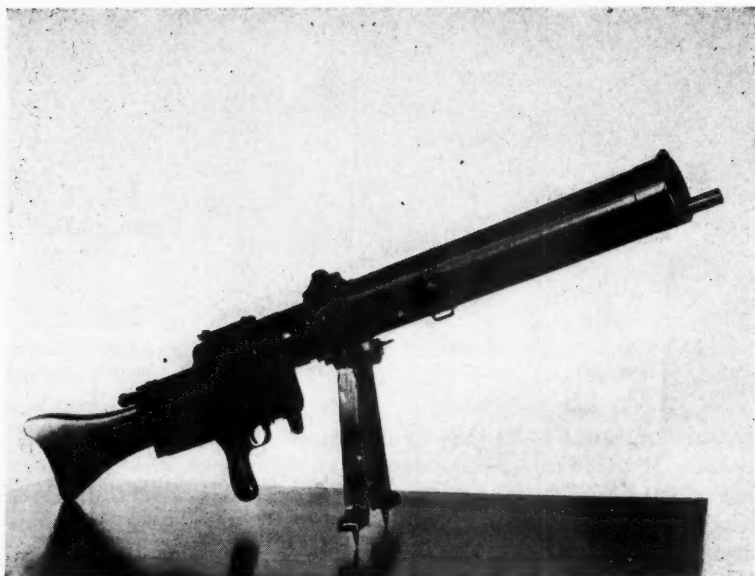
ordered millions of rounds of ammunition for its units.

John M. Browning, a gunsmith who developed popular sporting rifles for Winchester, Remington, Stevens and Colt arms companies, made still another outstanding step in weapons design—the first successful automatic gas operated machine gun. He developed the method of tapping the barrel near the muzzle and using the generated gases to actuate a gas piston while the bullet was just clearing the bore. The cycle of extraction, ejection, loading, locking and cocking was continuous as long as the trigger remained depressed.

Fifty of Browning's 1895 model machine guns, produced by Colt, were purchased by the Navy—the first purchase of an automatic machine gun by the United States Government. These weapons were used by the Marines to protect the foreign legations in Peking during the Boxer uprising. The Army, however, kept the Gatling as standard equipment for another decade.

As a result of the Navy's successful use of the 1895 model Colt by landing parties in the Spanish-American War, the Army also became interested in the weapon. But it could not use the Navy's guns due to the difference in caliber between Army and Navy rifle ammunition. In 1898 a joint Army-Navy board met and recommended standardization not only of rifle cartridges but of all small arms in the service. As a result, the Navy had all of its 6-mm. guns rechambered for the caliber .30-40 Krag ammunition, making them practically identical with that of the Army. At a later date, when the Krag caliber .30-40 was dropped from the service in favor of the Springfield caliber .30, the Navy again rechambered the weapon to use the new service round.

In 1904 Maxim in association with Vickers Sons produced



For more than sixty years, the basic principle of the Maxim machine gun remained essentially unchanged. This model is displayed in the museum of the United States Military Academy.

a machine gun weighing only forty pounds, by substituting superior steel and aluminum in lieu of heavier metals.

The Russo-Japanese War in Manchuria in 1904-05 was the first major war between regular armies in which automatic machine guns were employed in large numbers on each side, and with full fire effect. The Russian Maxims were recoil operated and water cooled, while the Japanese weapons—of French design manufactured in Tokyo—were gas operated, air cooled.

The Russians and the Japanese organized their machine guns alike in batteries of six or eight and treated them as a special arm. The Maxims were mounted first on artillery carriages with high wheels. Due to the exceptionally heavy losses sustained by the Russian batteries at the Yalu River, a low tripod with a shield was substituted. During the battle of Mukden, sixteen Maxims, half of them used at a time, repelled seven fierce Japanese attacks, and every gun remained in excellent condition.

It was during the Russo-Japanese War that military observers for the first time began to look upon the machine gun not as a piece of inferior artillery but as a superior military rifle. Every major power, some time between 1900 and World War I, adopted

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the Vickers-Maxim gun, either in rifle caliber, the pom-pom, or both. In the Balkan wars of 1912 the principal infantry arm of practically every nation involved was the Maxim machine gun, chambered to fit each country's rifle ammunition.

During the peaceful first decade of the Twentieth Century, the United States armed forces, especially the Navy, ran constant trials as new automatic weapons were introduced. But there was no prospective need for automatic machine guns. Finally, however, the United States realized she was unarmed compared with the rest of the world, and tests were frantically resumed.

In the 1913 competitive tests, the outstanding automatic machine gun was the Vickers, built by Colt. This was basically the 1904 Vickers-Maxim model. When adopted by the United States Army, it became known as the 1915 model Vickers.

The Army's Machine Gun Board in 1914 recommended immediate procurement of forty-six hundred Vickers guns, but nothing was done. Finally, two days after the United States declared war in 1917, Major General William Crozier, Chief of the Army Ordnance Department, authorized the purchase of four thousand Vickers, since there was not a single machine



The Maxim machine gun was adopted by the German Army prior to World War I. Here German troops demonstrate the weapon.

gun in the country suitable for use on the European front.

The German high command apparently was among the first to realize the deadliness of the weapon and made thorough preparations for the coming war; it had more than fifty thousand Maxim-type guns ordered or on hand at the outbreak of war.

On the day of this Nation's entry into the conflict in 1917, the United States, on the other hand, had an inventory of 670 Benet-Mercies, 282 Maxims (Model 1904) and 158 Colts (Model 1895)—a total of about eleven hundred weapons contrasted with the estimated one hundred thousand required to fight this strictly machine gun war.

True to the German military tradition, our adversaries had sought to build tomorrow's weapons today. In contrast, we hoped to build yesterday's weapons soon.

This is the concluding installment in a series of three articles extracted from "The Machine Gun" by Lieutenant Colonel George M. Chinn, USMCR.

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